VOLUME VI OCTOBER, 1913 NO. 10

Southern Medical Journal

Journal of The Southern Medical Association

THE TRUTH AND THE TRUTH ONLY ON EVERY PAGE FROM COVER TO COVER

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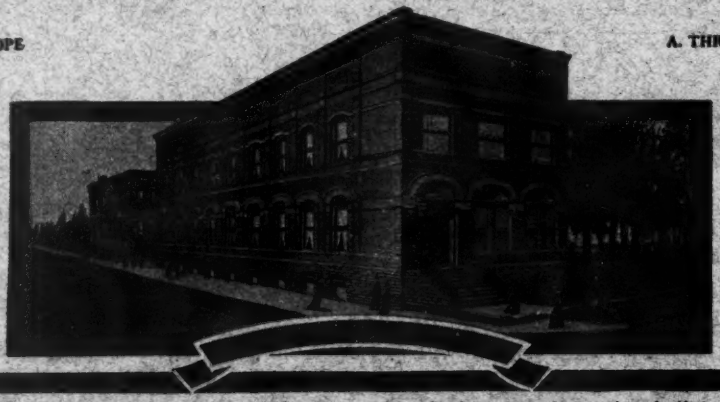

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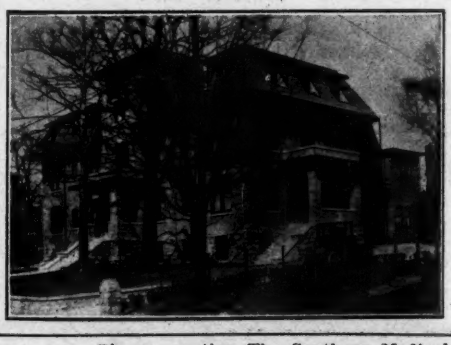

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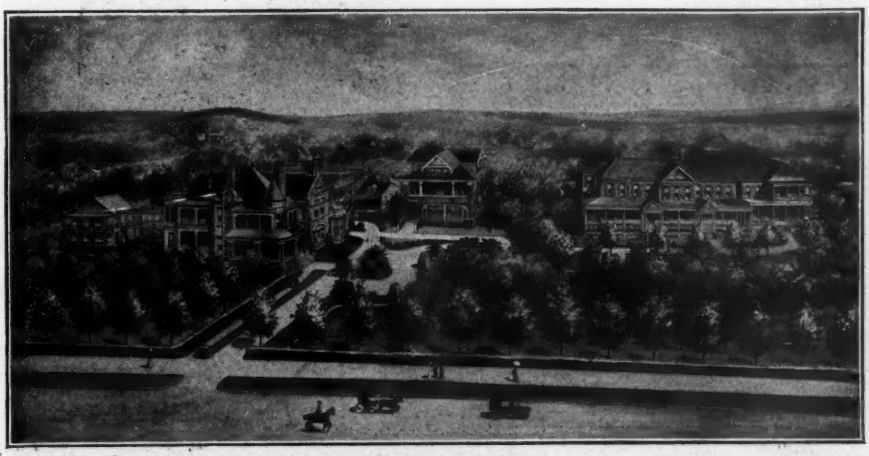

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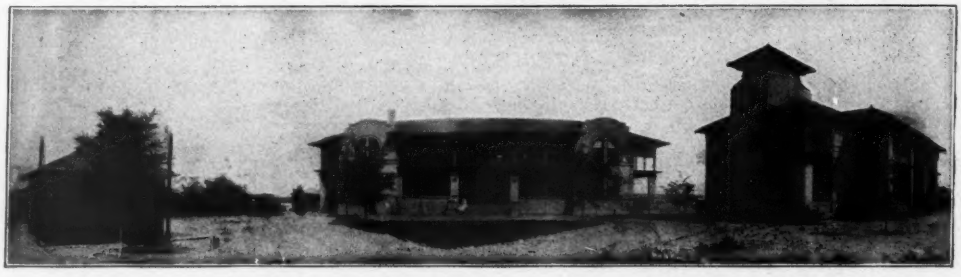

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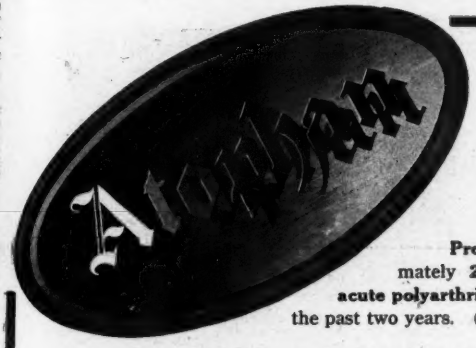

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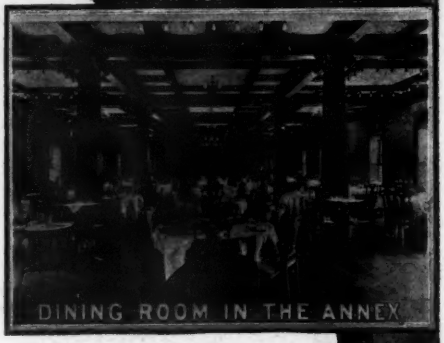

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ORIGINAL ARTICLES

HYDROTHORAX IN ITS RELATION TO CARDIO-RENAL LESIONS.

By Frank A. Jones, M.D.,
Memphis, Tenn.

To the physician who reads and observes, it is patent that the text-books on medicine and physical diagnosis have dismissed the subject of hydrothorax in rather a cursory and perfunctory manner. They have taken entirely too much for granted. We are told in a few lines that hydrothorax is a symptom; that it is a part of general dropsy; that it is a late manifestation following cardiac and renal lesions and blood dyscrasias. The author regards the subject as a broad one; a cardinal symptom and disease entirely too often overlooked in the process of an incomplete physical examination. He by no means accepts the traditional doctrines, as to its clinical and pathologic aspects, in their entirety. Hence his desire to bring the subject before this association. In hospital and out-clinic service, in consultation and private practice, in all walks of life, at all ages, in both races, in both sexes, from various causes the essayist encounters hydrothorax just as often as an acute primary condition, as an initial symptom denoting the onset of acute nephritis, as otherwise.

Quite frequently in acute or chronic nephritis he has observed it where there were no evidences of dropsy elsewhere. Viewed as an early symptom in the course of an acute nephritis along with the nausea and vomiting, headache and scanty albuminous urine, there are tangible grounds to assume that the same toxic agents that are operating in the kidney structure, in the production of an acute nephritis—the so-called large red kidney, are at the same time responsible for the acute changes in the lungs, leading on to oedema of the lungs, followed by changes in the pleurae productive of hydrothorax.

In these acute early hydrothoraces, associated with acute nephritis in most cases, there has been a preceding oedema of the lungs. In such instances the large red lung, or rather large black lung of the oedema of the lungs, obtains as much as a large red kidney, characteristic of acute nephritis.

In other words, the large red lung of oedema, and the large red kidney of nephritis can and do coexist. They are dependent upon the same causative factors, whatever these causes may be. Recently the author has seen, in his hospital service, the wet brain, the wet kidney, the wet lung, the wet pleura, the wet perdicardium, the wet subcutaneous tissues, coming on simultaneously, death closing the scene in less than two weeks after the initial attack of what present-day authors denominate as acute nephritis. A better term would be polyvisceroserositis.

From this viewpoint it can be readily seen that hydrothorax is not dependent upon the traditional passive congestion, venous stasis, permeability of the walls of the blood vessels, high venous blood pressure, slowing of the blood current, etc., but rather upon direct cellular toxemia. We fully admit that in slow, progressive hydrothorax, either from chronic renal or chronic cardiac lesions, the mechanical passive congestion theory has some vantage ground. Hydrothorax is not so apt to follow cardiac lesions as renal. When it does occur it is most often a part of a general dropsy, a late manifestation as a result of failing compensation. In most cardiac cases it denotes chronicity. Yet the author quite frequently sees it in mitral valve disease, where there are no other dropsical manifestations.

This brings us to the subject about which there has been so much discussion and controversy in recent years—oedema. What is oedema and what are its causes? This question has many answers, none quite satisfactory. The real answer is very much like a problem in calculus that you cannot solve. The more you work at it, the more you become befuddled. As my friend, Dr. McElroy, of Memphis, Tenn., said of the graphic methods in

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*Read before the Southern Medical Association at Jacksonville, Fla., November 12, 1912.

the study of heart disease: "Not only is it the calculus, but the differential calculus of diagnosis and pathology." Various authors have written voluminously upon the subject of late, among them we might mention Gideon Wells, Chicago; Alfred Stengle, Philadelphia; Hale White, London, and Martin Fisher, Cincinnati. Of all the literature that the author has viewed, we regard Fisher's book on oedema as the most satisfactory. His arguments are lucid; his logic is clear.

Fisher says in italic letters: **"The causes of oedema reside in the tissue."** Cellular irritation, independent of circulatory or mechanical disturbances, no doubt plays as important a role in the production of oedema as any other known theories.

In chronic or acute nephritis of whatever nature, or in valvular lesions of the heart, particularly mitral insufficiency where dyspnoea is a marked symptom, it is well to examine carefully for hydrothorax, especially so where there are no evidences of a general dropsy. As we said in the outset, hydrothorax is too often overlooked. Unless the physician has had a broad clinical experience and if he has to depend upon the text-book descriptions, we can readily see why this is true. We have been too prone to attribute the dyspnoea so frequent in cardiac and renal lesions to a vague conception of venous stasis. We know that in cardiac and renal lesions, dyspnoea may be due to both the respiratory and circulatory disturbances without exudation or transudation into pleural cavity. But to the younger members of the profession, I would admonish you to keep your eye constantly upon your cardio-renal patients with reference to a developing hydrothorax at any time.

It is important to recognize hydrothorax early. Much necessary suffering can be avoided by aspirating the chest. It is gratifying to the physician to have the patient's benedictions upon him in relieving the distressing dyspnoea and the wearing insomnia. In many instances, of course, the fluid will reaccumulate, but aspiration can be easily and readily resorted to.

The question here arises, how much fluid can be withdrawn at each aspiration? This depends upon the vitality of the patient, the amount of fluid present in the chest, the state of the circulation and the patient's mental attitude towards the operation. In nervous, high-strung women, and in children, it is well not to prolong the aspiration beyond the withdrawal of thirty or forty ounces, on account of the dangers arising through the vaso-motor system upon the circulation and respiration. In strong, robust men I have repeatedly withdrawn as much as a half gallon from each side with most gratifying results.

Those of us who have witnessed the pathetic appeal of the patient for relief from the dyspnoea and insomnia and anxiety and anguish, can readily recognize the almost magic results of aspiration. In a few hours after the operation the dyspnoea disappears. The patient drops into a quiet, refreshing sleep. Text-books admonish us of the dangers of aspiration, particularly Dieulafoy, as to collapse, albuminous expectoration and attacks of acute oedema of the lungs. The author has aspirated upwards of twelve hundred cases for various conditions in the chest. He has never had an accident, nor collapse, nor sudden death.

In conclusion, let me accentuate what I have tried to make clear:

First—Hydrothorax is often an acute condition instead of a part of a general dropsy. That acute nephritis is often ushered in by an attack of acute oedema of the lungs, followed rapidly by acute fulminating hydrothorax.

Second—That in all probability the attack of oedema of the lung, followed rapidly by hydrothorax, is due to the same toxic agencies which at the same time produced the renal changes. That in these cases passive congestion, venous stasis, etc., have nothing to do with the production of the oedema; that the large black lung is analogous to the large red kidney.

Third—When dyspnoea is marked, either in cardiac or renal lesions, examine the patient's chest critically for hydrothorax.

Fourth—Hydrothorax, massive in nature, is often latent.

Fifth—Saline cathartics, and digitalis, when hydrothorax is present to any appreciable degree, are dangerous. They invite oedema of the lungs and paralysis of the heart.

DISCUSSION.

Dr. John T. Halsey, New Orleans—I would like to ask a question for information. Did I understand Dr. Jones to say that in all conditions in which hydrothorax is present he looks upon both saline cathartics and digitalis as dangerous?

Dr. Robinson—I would like to ask Dr. Jones if he tries medication before he aspirates?

Dr. E. H. Pomeroy, Bradentown, Fla.—I have been very much interested in this paper because while in Washington a few years ago I heard one of the speakers, I think it was Professor Dock, remark upon the therapeutic value of auto-serum injections, and many other things were spoken of at that time in regard to the treatment of hydro-

thorax, and among them, removing the serum from the chest with a hypodermic syringe, and introducing the auto-serum subcutaneously immediately. I spoke of this to a neighbor of mine, a young physican, whom many of you know, and he told me during the past week that it had made an impression upon him. I told him what Dr. Dock had said, and he told me he had a case of pleurisy with effusion in which he removed each day for three days a hypodermic syringe full and reinjected the serum into the subcutaneous tissue with most gratifying results, and that in ten days he had succeeded in obliterating a large accumulation of effusion in the chest. Perhaps the men who have been associated with Dr. Dock in this auto-serum study can give us further information concerning it.

Dr. E. C. Thrash, Atlanta, Ga.—In regard to the use of serum, I think Dr. Pomeroy has drifted slightly away from the subject matter of Dr. Jones' paper. He refers to pleurisy with effusion. The fact is that almost all cases of chronic effusion with pleurisy are tuberculous, and the inoculation of this serum is beneficial just as the toxins from tubercle bacilli are beneficial in the treatment of tuberculosis. This serum would no doubt prove beneficial, but it is not what Dr. Jones has been speaking about. This effusion to which Dr. Jones refers is produced from high tension of the vessels of the lungs, high pressure, dilation of the heart, capillaries wearing out and giving way and relaxing. It is a pernicious cycle and this perniciousness tends toward the production of an edematous condition with effusion in all the body cavities. This transudation of the serum is not as much a toxic condition as it is a weakening of the capillaries. An exudate is physiological for the purpose of repair plasma passing out through the vessels and not serum, but in these pathologic conditions discussed by the essayist you get a transudate and a serum which is chemically different from plasma.

Dr. Steven T. Harris, Highlands, N. C.—In relation to withdrawing fluid in cases of hydrothorax, undoubtedly it is the proper thing to do, but in a condition that is complicated by tuberculosis, it would be an unwise thing, in my judgment, to withdraw the fluid on account of the effect the hydrothorax would have on the diseased lung.

Dr. Frank A. Jones, Memphis (closing the discussion)—In answering the question of Dr. Halsey, I will say that salines and digitalis, injudiciously administered, are detrimental when hydrothorax is massive. In fact, salines increase the osmotic pressure to such a degree that the ingress from the cell, after the removal of the serum, is greater than the egress, and puts the circulation in a state of unequal equilibrium. Under these conditions the heart muscle is so weak that there are numerous instances of atheroma in the coronary arteries and arch of the aorta, so that the heart cannot respond to the stimulating effect of the digitalis that is administered.

Another gentleman (Dr. Robinson) asked the question, if I tried therapeutic remedies. Yes, I have seen in the last seven months thirty-six cases of hydrothorax, and in fully 55 per cent of them hydrothorax had not been dreamed of. They did not present much dyspnoea. They did not present any circulatory disturbance. They did not present any respiratory disturbance, yet both were absolutely glutted with this silent fluid, which we find in our post-mortem examinations. We had a case in the hospital a short time ago. I saw him during the afternoon after having tapped him in the morning. He dropped dead. Patients with these silent fluids in the chest drop dead from engorgement of the heart or from thrombosis. I have tried medical treatment and treatment with salines. Where the dyspnoea is of marked degree, the salines are of no avail. We have a way of claiming too much for digitalis. I have always been skeptical of digitalis, and always will be, and the more I study its action, the less regard I have for it. If we put our patient to bed, give him a mild diet, have him sponged, give him physical and mental rest, we rest the heart, we rest the body and his nervous system, and along with that we give digitalis and salines, but which did the most good, the rest in bed or the digitalis and salines? We have indications for the use of digitalis and salines, but where we have an accumulation of fluid, with a pumping station that is broken down, and frequently this pumping station breaks down in these cases, as is related in "The Deacon's Masterpiece" or the "Wonderful One-Hoss Shay." It goes to pieces, and it goes to pieces very suddenly. Not infrequently there is sudden death in those cases where we have had this massive hydrothorax.

Dr. Pomeroy referred to auto serum. Of course, I have used auto serum therapy in tuberculous pleurisy merely to condemn it. To talk about auto-serum therapy in tuberculosis would be like starting a row on appenditicis, malaria or typhoid fever. (Laughter.)

Dr. Strauss thought the process was truly an inflammatory one or an exudation. In some of the severe cases of hydrothorax we have silent, sleeping, latent tuberculosis. Sometimes we have a fluid that is mixed; sometimes you will find evidences of inflammation, and sometimes you will not. It depends on what changes have taken place in the tissues.

In reference to the use of cathartics, it is not going to do much good to use hydragogues. I would use plain, old-fashioned calomel. A good calomel purge will relieve the congestion or the toxemia, and I do not know of any diuretic that is better than calomel.

EPITHELIOLYSIS AGAINST CARCINOMA—PRELIMINARY NOTE.*

By A. E. Thayer, M.D.,
Professor of Pathology, University of Alabama.

The inception of this work dates back to January, 1906, at which time the experimental studies were begun on which it is based. The working hypothesis may be formulated about as follows:

(a) It had already been well established that the injection of cells from one animal into the

*Read before the Mobile County, Ala., Medical Society, September, 1913.

body of another would make the serum of the recipient animal lytic for such cells in the test tube, and that each of such actions was specific for a given cell.

(b) It had not been shown that the degree of this lytic action could be raised by repeated injections until the serum of the recipient became lytic for its own cells of similar kind.

(c) If this could be accomplished in the experimental animal, similar development of lytic action in the body of an animal or human being suffering from hyperplastic processes might hold them in check.

(d) Specifically, the development of epitheliolytic power in the serum of a case of inoperable carcinoma should destroy not only the cells of the main tumor, but also the finest and most widely scattered metastases.

(e) The cells of carcinoma have a strong tendency to degenerate soon after formation. They are, therefore, on a plane of less resistance than those of the normal type of epithelia, whether merely investing or more specialized; could this natural tendency to degeneration be hastened and intensified without injury to normal epithelia, or would it be necessary to make the lytic power strong enough to affect them also in order to entirely destroy the neoplastic cells, and how would this be recognized and controlled clinically?

The first thing to establish was whether repeated injections of epithelia into an animal would render its serum lytic for its own epithelia. For this purpose many experiments were carried on, epithelia from the dog being injected into rabbits, dog and sheep epithelia into dogs and cats, etc., the intraperitoneal route being employed almost exclusively from the first, and it was evidently the fact that repeated intraperitoneal injections of washed sterile epithelia, injected at five-day intervals, caused general destruction of practically all the epithelia of the recipient animal. The organs, sectioned in paraffin, showed degenerative changes in proportion to the frequency and amount of epithelia injected, and clinically the animals developed diarrhea and other symptoms corresponding to such lesions. So many experiments of this kind were performed, and the result was so constant, that the first part of the working hypothesis was regarded as established.

The next step was to try a similar procedure in a case of inoperable carcinoma. For this purpose several autolysates of epithelia were prepared during the late winter and spring, the washed material sterilized over chloroform and kept in the incubator at 37 C. for a couple of months, then filtered and tested for the presence of germs and ferments. When ready for use it has the following characters: It is of light straw color, of a specific gravity of 1,008—1,010, faintly alkaline, ether dissolves out a trace of fat but causes no precipitate, nitric, picric and trichloroacetic acids give a fine precipitate; it contains no bile, no proteolytic ferments (others not tested for), but does contain one-tenth per cent of urea and 0.19 per liter uric acid; before use it is tested by both aerobic and anerobic cultures and found to be sterile.

On July 24, 1913, a patient was referred to me from the service of Dr. H. P. Cole at the Providence Infirmary, Mobile, Ala., with a diagnosis of inoperable cancer of the cervix. Her history includes the following points of importance: Mrs. W., aged 47; white, married, diagnosis adeno-carcinoma of cervix. A portion of the tumor was submitted to me for examination and it proved to be a flat-celled carcinoma. Her family history was not relevant, except that nowhere among her near or distant relatives was there any case of tumor of which she was informed. Personal history included malarial fever four years ago, obstinate constipation and hemorrhoids for the last four years. She began to menstruate at the age of twelve, was the mother of two healthy children, having normal labors, normal menopause occurred nine years ago. Her present illness began fourteen months ago, the date being fixed by the first appearance of hemorrhage from the vagina; this was a bright red, persistent discharge which has lasted to the present, but lately there has been a more purulent discharge and the odor of decayed flesh has become extremely disagreeable. For the past two months she has had sharp cutting pains in the lower portion of the abdomen, which were not related to the functions of either bladder or bowel, and the pain has extended down the right thigh and up the back.

Examination—Teeth bad, thorax normal. Abdomen, a large irregular mass may be palpated in the lower right segment, occupying the right iliac fossa in part and extending into the pelvis; the mass is firmly fixed, slightly nodular and of nearly uniform consistence; over it there is moderate general tenderness. The inguinal lymph nodes are enlarged, rather more on the right side. Vaginal examination, yellowish discharge, odor of rotten meat, large crateriform erosion of entire cervix, much induration of pelvic tissues, especially on the right side, uterus fixed, no external masses on the cervix, but inside it one readily breaks out with the examining finger masses of necrotic, putrid, granular tissue.

Operation—Exploration, closure. The lower portion of the uterus was thoroughly curetted and cauterized, and packed with gauze soaked in 5 per cent formalin.

Pathological Findings at Operation—Cervix completely eroded in canal portion, invasion of the right side of the pelvis in the form of a nodular mass which involves the broad ligament well toward the top, peritoneal adhesions involve the tube on the right side, less invasion on the left side; there is as yet no involvement of the intestines.

Post-Operative—Uneventful recovery, out of bed in five days, repacked daily, crater cleaner, odor disgusting, discharge free. Referred to Dr. Thayer. (Extracts from Dr. Cole's notes.)

Blood Examination.

Total reds	4,500,000
Whites	12,000
Hemoglobin	58 per cent
Hemoglobin total	7.97
Hemoglobin index	.63

Differential.

Polynuclears	65.74
Large lymphocytes	17.46
Small	5.81
Hyaline	2.14
Transitional	1.52
Eosinophile	6.72
Mast	0.0
Myelocyte	.61
	100.00

On Friday, July 25, two c.c. of the filtered lysate, diluted with ten c. c. sterile physiological salt solution were injected under the skin of the right side, between the ribs and the iliac crest. By Monday, the 28th, she said that her pain was a little less; this symptom had been continuous and unrelieved by the operation. On this date five c.c., well diluted as before, were injected; since she had had no reaction beyond a half a degree of temperature, it was thought safe to double the dose, the point of injection being the left flank. On Saturday, August 5, ten c.c. were given, on Friday, August 8, ten c.c., and Saturday, August 16, twelve c.c. The site of injection has at no time shown any redness, induration or tenderness.

At the latter date the patient's cachexia had practically disappeared, her vaginal discharge had nearly ceased and had lost the foul odor entirely, the lymph nodes of the groins were barely palpable, the pain in the abdomen had ceased and but little was left in the right thigh, and in the week of August 2 to 8 she had gained two and a half pounds. In the week following by some oversight a gauze pack was left in the vagina till it became foul and she had a slight fever and considerably more pain in the thigh, all these symptoms being relieved as soon as the pack was removed. On Saturday, August 16, a vaginal examination was made and a small cone-shaped granulating surface discovered in place of the cervix, and from this surface there was a slight discharge of healthy yellow pus in small amount. Preparations had been made for taking another portion of the tumor for microscopic examination, but there was no tumor visible by speculum. In spite of the absorption from the foul vaginal pack she had not lost weight or strength and was feeling well, conscious of returning strength, with a good appetite and able to sleep well. She lives out of the state and makes a railroad journey of an hour or more without fatigue. The blood at the latter date had the following characters:

Total reds	4,500,000
Whites	8,900
Hemoglobin	62 per cent
Total	8.52
Index	0.7

Differential.

Polynuclear	67.42
Large lympho	9.12
Small	10.08
Hyaline	3.70
Transitional	3.70
Eosinophile	4.80
Mast	0.28
Myelocyte	0.00
	99.1

Urine Examination.—1.012, subacid, small amount whitish sediment, yellow, turbid, no abnormal odor, albumin a trace by several tests, no sugar, bile or indican, trace of indol-acetic acid, total solids 27.96, urea 7.5, uric acid 0.238 per liter, chlorides 11.0 per liter; microscopic, a few flat epithelia, numerous polynuclears, few lymphocytes, no red cells, crystals or casts.

On Saturday, August 28th, the decrease in the size of the inguinal nodes was still more marked, the tumor which at first was palpable through the abdominal wall could no longer be felt; there was no more pain even down the right thigh, no vaginal discharge or odor, and through a bivalve speculum nothing abnormal could be seen except a small, granulating area in the vault of the vagina, covered with a little yellow pus. By vaginal touch the infiltration in the broad ligament was still present but notably decreased. General condition excellent; slight gain in weight. Twelve c.c. were again administered in the usual way.

The patient's condition Saturday, August 20, is still satisfactory.

A few more words of general discussion may be added. It is too soon, of course, to claim that this case has been cured, though the patient's response to treatment has been so rapid and successful apparently. But I regard the working hypothesis as proved, that the serum may be rendered lytic by repeated injections of an autolysate of epithelia, and what was expected as the result, namely, that the intimate microscopic medication of cancer cells from within by an all-pervading, ever-present chemical agency, not injurious or but slightly injurious to the body's normal epithelia, would affect favorably both the main tumor and also its metastases, however minute, has seemingly taken place in this case. Before beginning the treatment it was desirable to ascertain whether the patient's blood had already any lytic power, and for this purpose a syringeful of blood was taken from an elbow vein, two dilutions of the serum were made, one stronger and the other weaker, and in these two small pieces of fresh human epithelia from the duodenum, obtained at autopsy three hours after death, were kept at 37 C. in the incubator for twenty-four hours; the epithelia in the weaker solution showed no effect, after sectioning in paraffin and staining with hematoxylin and eosin, but those in the stronger solution showed a granular change in the cytoplasm, with swelling and partial fusion of cell with cell, the nuclei apparently not affected. If the interpretation of this is correct, that the patient already had some lytic power in her serum, perhaps that explains why she reacted so quickly and favorably to treatment. And in general such a test should be made in all cases treated after this method, for the prognosis for a rapid increase of the lytic power and for shorter duration of the treatment will depend upon this. Possibly in a larger clinical material patients may be found who have no lytic element in the blood and in whom it cannot be developed without raising autolysis to a dangerous point. Closely connected with this is the question whether a great increase in lysis of the tumor cells, and the consequent entry of their degeneration products into the circulation may affect unfavorably the organs which eliminate them, especially the kidneys. This question remains to be cleared up by further study. It was desirable, and fortunate, that the first case treated had a tumor which was accessible so that a piece could be removed and the diagnosis established microscopically beyond a doubt, and assuming that other flat-celled carcinomas may be affected favorably, it is still to be determined whether carcinoma of a different type will also respond in the same way. All that may safely be claimed, on the basis of this one case is that there has been a prompt and so far very encouraging response; but if the time arrives when she may be discharged as cured and other cases show improvement of varying degrees, then I believe that the problem will have to be restated and worked out again for the sarcomas, which in my opinion is a far more difficult and complicated task. Beyond these, there is a group of other pathological conditions, like Hodgkin's disease, where abnormal hyperplasias are an important element in the lesion, where a somewhat similar line of reasoning may perhaps be employed to advantage.

In all such hyper plasias there are three elements to be considered: (a) The tendency of certain cells to multiply, with a rapidity proportionate to their departure from the normal of their type, a feature most distinct in the malignant tumors, especially in the more malignant forms of these; the etiology of the process in most cases is unknown. (b) A tendency of the newly-formed cells to degenerate, and this also is a marked characteristic of malignant neoplasms. The etiology is unknown for the most part, unless the formation of proteolytic and other ferments in the hyperplastic cells or a lytic action of the blood may produce it, or local causes like decrease of a part's nutrition. The importance of this tendency to degenerate in the case of tumors can hardly be overestimated, and in the complex process, often accompanied by inflammation and necrosis, there are certain factors of which we wish to take advantage in the lysis of tumors, and which probably explain the cases of spontaneous cure, of which there are about 200 instances on record. For example, a case was reported in the British Medical Journal in 1906, in which a moribund cancer patient had a copious effusion into both pleurae, abosrbed the serum and showed regression of her tumors. What happened? Did the serum become more lytic by its stay in the pleural cavities? Was it not rather that all the body cells suffered from decreased nutrition during the continuance of this serous hemorrhage, but the cells of the neoplasms suffered most, and after reabsorption the serum, previously too feebly lytic to destroy them, was able to hasten the degeneration already begun? (c) The third element in these pathological processes is the lytic power of the patient's serum. This is the object of our therapeutic measures, which we hope to establish or increase by injecting epithelial lysate, in order to obtain in the

patient's serum a specific lysin for epithelia below the normal level, whose effect shall be to intensify element b, and, probably, control element a. It would appear that some measure of success has been attained in this one case.

BACILLARY DYSENTERY IN INFANTS.*

By Dr. W. W. Harper,
Selma, Ala.

By bacillary dysentery I mean what Kerley terms summer diarrhoea, and what Holt designates entero-colitis. While these two great pediatricians have shed a flood of light upon this disease, it remained for Arthur I. Kendall to give us the key to the real situation. Two summers ago he examined bacteriologically the stools of all infants in the Boston Floating Hospital. As a result of these examinations he discovered that the infecting organisms in bacillary dysentery were: Shiga and Flexner bacilli, 70 per cent; gas bacilli, 20 per cent; streptococci, 9 per cent; colon bacilli, 1 per cent. In his investigations he found that these organisms differed materially in their diet, and he, therefore, grouped them according to the nature of their diet as follows: 1, proteid; 2, carbohydrate; 3, facultative. In the proteid group were placed the Shiga and Flexner bacilli and the streptococci. In group 2, i. e., the carbohydrates, were placed the gas bacilli; while the colon bacilli occupied group 3. He furthermore discovered this important fact, that the proteid group flourished and produced toxins only when feeding upon proteids, and that when they were fed carbohyrates they not only ceased to produce toxins, but were soon starved out. The exact reverse was found to be true of the carbohydrate family. They elaborated toxins only in the presence of carbohydrates and were starved when fed proteids. The colon bacillus was designated a facultative germ because it could live either upon proteids or carbohydrates and developed toxins in the presence of either, but it required a certain length of time for it to adapt itself to a change of diet. That is, if it was being fed proteids and then the diet was suddenly changed to carbohydrates, the colon bacillus lay dormant until it adapted itself to the changed diet. The same thing happened if it was fed carbohydrates at first and then suddenly changed to proteids. Therefore, if the diet was suddenly and rapidly changed, the organisms soon lost their virulence because of their inability to quickly adjust themselves to these rapid changes of diet.

The colon bacillus is a normal inhabitant of the colon and as long as it remains in its normal habitat it does little harm. In fact, it recompenses its host by acting as a policeman in the colon. In the presence of a proteid infection which requires an alkaline medium for the proper growth of the proteid family, the colon bacillus acts upon the proteids in such a way as to produce an acid medium, in which medium the proteid family gradually loses some of its virility.

If the infection is from the gas bacillus, which needs an acid medium for its best development, the colon bacillus attacks the carbohydrates and forms an alkaline medium in which the gas bacillus loses some of its virulence. Thus, the colon bacillus does what it can to rid its host of intruders.

Kendall also autopsied all infants dying on the boat and found that in bacillary dysentery the inflammation was limited to the sigmoid and lower two-thirds of the descending colon practically in all cases.

Symptoms.—In all three forms of bacillary dysentery the symptoms are identical. The infant is usually taken suddenly ill with fever ranging from 102 to 104, flushed face, warm extremities, and a quick, bounding pulse. In a severe infection the patient is dull and listless, looks depressed, while the face has a dusky, suffused appearance. In my experience there is not much nausea and vomiting. Tormina and tenesmus are frequently distressing symptoms. The stools vary from twenty to forty in the twenty-four hours. The color ranges from green to yellow, while the contents are principally blood, pus and gelatinous mucus. The odor may be putrid, but usually the stools have a fresh, sickening smell.

To successfully treat the disease it is absolutely necessary to make an accurate diagnosis. The early appearance of blood and gelatinous mucus in the stools distinguishes bacillary dysentery from other diarrhoeas and typhoid fever; while the presence of fever eliminates intussusception. The form of bacillary dysentery is diagnosed by a microscopical and cultural examination of the stool. The Shiga and Flexner bicilli are gram negative, while the gas bacilli are gram positive. The cultural diagnosis is made by putting a small amount of the bowel movement into a test tube filled one-third with sterile milk and boiled four minutes. This kills all bacteria, but not their spores. The gas bacilli are spore bearers, and,

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while the bacilli themselves are killed by boiling for four minutes, if the temperature of the milk in the test tube is now quickly reduced to 100 and kept in an incubator for twelve to twenty-four hours, the spores will hatch. The young gas bacilli now attack the curd of the milk and blow it to pieces. If, therefore, the milk has the appearance of having been dynamited and a stained smear shows gram positive organisms, a diagnosis of gas bacilli infection can be made.

Treatment.—The treatment is general and specific. The child should be kept quiet on the bed with an abundance of fresh air in the room. The feet and legs should be kept warm. If necessary, put on stockings and apply to feet a hot-water bottle. Those who have autopsied infants must be impressed with the thinness of their omenta and the limited amount of fat in the abdominal walls. On this account the intestines are easily chilled and to prevent this chilling I apply a flannel abdominal belt. Unless the temperature remains persistently high (104), or makes the patient restless, I do nothing for its reduction. To lower it, sponge with ethyl alcohol and tepid water 1 to 4. Do not give these patients cold baths and coal tar antipyretics. The shock following such treatment does a great deal more harm than the high temperature. Give as much cool, sterile water as possible. The water not only dilutes the toxins and hastens their elimination through the kidneys, but maintains body weight and delays cell destruction. The water should be not only sterile, but it should be given from a sterile cup.

Ordinarily I give twice a day a high colon irrigation of one-half gallon of sterile, normal salt and soda solution. If the stools are very offensive, I irrigate every eight or six hours. A small square of cloth is placed in each napkin. This receives the stool, and after its inspection it is burned. By this method the napkin can be more readily washed and the chances for re-infection are lessened. In changing the napkin and cleansing the parts of females, the nurse should be instructed to wipe down and thus avoid forcing some of the bowel movement into the vagina and urethra. A colon infection of the ureter is a not infrequent penalty for failure to observe this precaution. The attendant should disinfect her hands after changing each napkin.

The patient should be accurately weighed each day and its diet so adjusted that it will receive approximately its caloric needs. A baby under one year needs sixty calories per pound and thereafter fifty calories to the end of infancy. If regard is had for its caloric needs, the average baby can be carried through its illness without becoming a skeleton. Frequently it will weigh as much at the end as at the beginning of its sickness.

Do not give intestinal antiseptics, as they are likely to upset the stomach and are practically worthless as antiseptics in the intestinal canal.

Recent experiments have shown that whisky and alcoholic preparations are not stimulants and their caloric value is only that of sweetened water (Morse). If stimulants are needed to tide the patient over a crisis, give camphor, caffein or strychnia—preferably hypodermically. For pain, give paregoric with caution.

For tenesmus, a high irrigation of starch or bismuth subcarbonate by coating over the inflamed mucosa frequently gives relief.

Specific Treatment.—The nursing infant should be kept from the breast at least seventy-two hours. Give a dose of castor oil or calomel in small doses if the child cannot retain the oil, and until an accurate microscopical and cultural diagnosis is made, the patient should be given as much sterile water as it had been taking milk. If the infection is found to be proteid, the sterile water is replaced with a 5 per cent lactose solution which nourishes the patient, but being a carbohydrate, starves the parasites. If at the end of the third day the baby seems better, breast feeding can be cautiously resumed, alternating with the lactose. In resuming the breast, let the baby take sufficient lactose, just before the feeding to dilute the breast milk one-half. It should nurse from two to three minutes from each breast. This gives a high sugar with a low fat and proteid per cent. If a return to the breast aggravates the condition, discontinue its use and try to maintain the breast function with a healthy baby or a puppy. As baby improves, cautiously increase the number of breast feedings, lessen the dilution and lengthen the time of nursing.

Should the infection prove to be a gas bacillus, substitute for the lactose, bacillary milk which sustains the child, and in this case being a proteid, starves the gas bacillus. In infants under six months the bacillary milk may have to be diluted one-third or one-half.

In the colon bacillus infection the baby should be given the lactose one day and bacillary milk the next. This rapid changing from carbohydate to proteid and from proteid to carbohydrate prevents the colon bacillus from adapting itself to either diet and it dies from inanition.

In bottle-fed babies the treatment is identical except that the sweet milk should be withheld

for a much longer time. It must be borne in mind that the lactose solution and the bacillary milk are low in caloric value when compared with whole milk and their use should not be continued too long or the baby will lose in weight.

In bacillary dysentery, infants handle fats poorly and in returning to sweet milk diet, the fat element should be low—say 1 per cent. This can be cautiously increased to 3½ per cent, which strength should not be exceeded. In infants over six months of age the caloric value of the milk can be increased by using cereal dilutants.

In conclusion, I wish to advise the administration of Flexner's anti-dysenteric serum in the pure Flexner bacilli infection. The dose is 10 c. c., repeated every six hours until three or four doses are taken. In some cases it has a markedly beneficial effect, while in others I have seen no appreciable results.

THE NON-MEDICAL TREATMENT OF CHRONIC CONSTIPATION.*

By F. W. Wilkerson, M.D.,
Montgomery, Ala.

Chronic constipation in all probability is the most frequent condition that the modern medical man is called upon to treat, and, without doubt, in the large majority of cases it is the most neglected and most carelessly treated ailment within the realms of medicine. Steele, writing in Progressive Medicine, says: "Constipation is increasing and extending. Conditions of modern life are such that this is to be expected. Increased facilities for transportation interfere with proper exercise, and the rush of modern life often leaves no period in the day for regular going to stool." This statement is true, yet most of us make no effort to prevent the disease, and, when we are confronted with a case already developed, are content to adopt some simple palliative measures rather than to ferret out the cause and endeavor to cure our patient of a very uncomfortable and oftentimes disabling malady.

The probable chief reason for the indifference of physicians to chronic constitpation is that it is not often dangerous to life, hence does not arouse the physician's interest as would a more serious disorder. It causes, however, an untold amount of suffering and discomfort, making life for many a burden when it should be a pleasure, and in many instances decreases one's wage earning ability, thus becoming a direct factor in decreasing economic efficiency. Proper steps toward prevention and treatment would vastly increase the sum total of human happiness, and would add not a little toward the financial welfare of many families.

In this paper, which is limited to that form of constipation known as habitual or atonic constipation, I do not pretend to present anything new or original, but I selected this subject because of its practical value, and because of some personal successes with the treatment outlined.

In considering the treatment, a brief review of the etiology will aid us, only the non-mechanical factors being considered. These may be classified as: (1) heredity; (2) age, occupation and sex; (3) intestinal atony and loss of tone in the abdominal muscles; (4) irregular habits of going to stool; (5) improper diet; (6) inflammations of the bowels, more especially of the caecum, sigmoid, and rectum; (7) affections of the nervous system, lead poisoning, tabes, dorsalis, and psychic influences.

Heredity does not play the part that has been attributed to it.

Age, Occupation and Sex.—Constitpation is often acquired in infancy and childhood because of parents' neglect in regulating the diet, and in teaching the child a regular habit of moving the bowel. According to Delancey Rochester, this is the most common cause of chronic constipation. False modesty and timidity in early school life often increase the trouble. Old age, by reason of the numerous diseases incident thereto, the small diet, and the lack of exercise, is often the cause of constipation. Those leading sedentary lives, or whose occupation do not permit them to have evacuation when desired, suffer from costiveness. Among these may be mentioned railroad men, street car conductors, motormen, etc.

Females are much more constipated than males, due to their more sedentary lives, their mode of dress, child-bearing, and false modesty, which often prevents them from having a stool for fear of being seen going to the toilet.

Intestinal atony and loss of tone of abdominal muscles arise from many causes, as sedentary occupations, obesity, pregnancy, chronic wasting diseases, the drug and enema habit, etc. The drug and enema habit is one of the most common sources of the subject under consideration. The habit of taking drugs for the bowels is more common in the United States than in any other country save England, and constipation is more

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common here than in any other country save the one mentioned (Gant). The drug habit favors constipation by causing the patient to depend on the drug rather than on himself; it causes overstimulation of the intestines, irritation and inflammatory processes, with consequent atony; or else hyperirritability and spastic constriction of the large intestine. Enemata are often of great assistance in properly selected cases, by toning up the intestines and emptying the bowels of feces, but if the use of enemata becomes a habit, the constipation may be increased. The use of too much water in enemata leads to atony, dilatation, enteroptosis, etc.

Irregular habit of evacuating the bowel is by far the most common cause of habitual constipation. A regular time for the daily evacuation is a necessity. Among the causes preventing this are ignorance or indifference, false modesty and inconveniently located privies or toilets. The best time for the daily evacuation is after breakfast, because during the night the fecal matter accumulates in the colon, and the morning meal stimulates the bowel and starts up peristalsis. Reading at stool is a pernicious habit, because it detracts attention from the act of defecation and often causes the act to be only partially completed.

The high seats so prevalent in water closets and privies often interfere with the desired movement, the position assumed being upright instead of squatting. The squatting posture is the natural and most effective one because in this position the abdominal muscles may contract down upon the intestines, aided by pressure from the muscles of the thighs, thus propelling the fecal column from the sigmoid into the rectum.

Improper Diet.—Insufficient time is often allowed for meals, and, as a result of this, the partly masticated food, insufficiently mixed with saliva, is hurried into the stomach and small intestine, where it cannot be properly digested. When kept up day after day this results in chronic indigestion and atony of the stomach and intestine. Gourmandizing, which is only too frequent, overloads the intestine, overtaxes the digestive capacity of the bowel and gives it no time for rest. The diet may contain too little water, insufficient fat, or not enough cellulose. A vegetable diet containing cellulose excites more peristalsis than a meat diet, by reason of the residue that it contains. It also has a larger quantity of water than a nitrogenous diet. But too heavy a vegetable diet may cause constipation by leaving too large, dry a residue. The diet may be too light, or the food may be too concentrated, having too slight a residue. The diet may contain too little water. Normally the feces should be 75 per cent water, too dry a diet causing them to become dry and hard.

Inflammation of the Bowel.—Colitis, proctitis, etc., cause constipation alternating with diarrhea.

Affections of the Nervous System.—Hysteria, brain and spinal cord diseases, and psychic disturbances all cause constipation.

With the symptoms of chronic constipation you are, of course, all familiar and it would be but a waste of time to discuss them here.

An accurate diagnosis is essential to the proper treatment. This means a careful history and thorough examination of every patient presenting himself with symptoms of this trouble. Having made a diagnosis of habitual constipation, all the etiological factors in the given case should be considered and the treatment instituted accordingly.

This affection is one of the most obstinate and difficult for prevention and cure, and may take months of treatment. The patient should be made to realize this, and should give his hearty co-operation to the physician in charge. I know of no other condition in which the help of the patient is so vitally necessary to the success of the treatment. Patience, perseverence and optimism are required of both physician and patient, but in the large majority of cases success will follow in the long run and the patient will be made a happier and more useful man.

The treatment of chronic constipation by cathartics and purgatives is unnecessary, illogical, and unsuccessful, though, of course, there are times, especially in the beginning of treatment and at intervals during the course of treatment, when an occasional cathartic is indicated. Most cases can be cured without the use of drugs, and, according to Gant, the medicinal treatment of this condition is becoming unpopular for the following reasons: (1) It never effects a cure, (2) the doses of the drug have constantly to be increased or else a new drug substituted, (3) frequent purging is injurious to the gastro-intestinal tract. It is easy to secure a daily evacuation with drugs, but difficult to keep this up after discontinuing the drug. Boas uses purgatives only in cases so obstinate that dietetics or physical remedies have no result, and in the aged.

The non-medicinal treatment resolves itself into two varieties—the educational and prophylactic, and the treatment of the disease after it has become established.

Educational and Prophylactic.—The constipated habit is often formed during infancy and child-

hood, being due very largely to mismanagement on the part of the mother in attending to the diet and the habits of the child. Every child should eat regularly, sleep regularly, and be required to have a fixed time for defecation. but should be taught also to empty the bowel whenever the desire is present. The child's diet should be carefully looked after, and should be modified from time to time to suit the needs of the growing body. Teachers in schools are often too rigid in their rules, not allowing children to be excused to attend the calls of nature. This is a mistake and many cases of constipation can be found to have originated from such a practice. Greater liberality should be allowed children and no penalty should be inflicted on them for having to obey nature's necessary commands. Toilet facilities in schools and public buildings should be better arranged, more cleanly, and better located than they are in many instances. The seat should not be too high from the floor and footstools should be provided for children, so that their feet can rest on the stool and they can assume the squatting posture, which we have seen is the natural and most effective one in defecation. False modesty should be overcome. Physicians should educate the laity—teach them the harmful results of patent medicines, purgatives and the injections of large quantities of water, at the same time demonstrating to them that these agencies do not cure the trouble. Observance of these things will prevent many a severe case of constipation.

Treatment of the Disease After it Has Become Established.

Dietetic.—The diet is one of the most important factors in the successful treatment of constipation, and many cases can be cured by no other means than a properly selected dietary. Before we attempt to regulate the food, however, we must know the cause of the trouble and the peculiarities of the patient. The diet should be changed gradually to avoid attacks of indigestion, diarrhea and colic, which may often follow a rapid change from a meat to a vegetable diet. It should contain about six and a half times (by weight) as much vegetable as meat, together with a liberal portion of starches, sugars, oleaginous foods and water. The vegetable diet would be ideal except that it often produces flatulence and other disagreeable symptoms if long continued. Consequently, there should always be a small amount of eggs, meat, fat and other easily digested food, with a liberal amount of fluid. Smith, in that excellent little volume, "What to Eat and Why," mentions the following requisites for the diet: (1) It should be nourishing, (2) should contain a large amount of cellulose, (3) should contain a good amount of fat, (4) plenty of fruit and salt, (5) a moderate amount of protein. A diet of this nature leaves a bountiful residue and promotes active peristalsis. Fruits are helpful by reason of the acids they contain. The fat oils the intestinal canal, allowing easy passage of the fecal contents. Water prevents the feces from becoming hard and dry, and when taken cold exerts a decidedly stimulating and tonic action upon the bowel. The food should not be too completely masticated.

Among the permitted foods are:

Cereals—Oatmeal, hominy, grits, cream of wheat, cracked wheat, corn meal mush.

Soups—Boullion, chicken, oyster, beef, vegetable, potato.

Fish—Oysters, any way except fried; almost any kind of broiled, baked or boiled fish.

Meats—Bacon, broiled steak, mutton or lamb chop, roast beef, mutton, scraped or chopped beef, broiled sweetbreads, broiled or roasted chicken, turkey, squabs and game birds.

Breads—Brown, Graham, whole wheat, corn meal, bran and rye. I can especially recommend the use of bran biscuit.

Oleaginous Foods—Cream, butter, oils.

Vegetables—Carrots, turnips, spinach, cabbage, beets, cauliflower, boiled Spanish onions, celery, peas, string beans, corn, tomatoes, Irish potatoes, egg plant, squash.

Salads—Lettuce, cucumber, tomato, asparagus and grapefruit (with considerable oil in the dressing).

Desserts and Sweets—Sugar, honey, syrup, jellies, jams, marmalade, rice, tapioca, bread, apple and fig puddings; baked apples, custards, ice cream.

Fruits—All fruits except bananas.

Drinks—Water, milk in small quantity, buttermilk, weak tea, coffee occasionally, fruit juices, sweet wines and sometimes beer. (Taken from Gant.)

Of all these articles those having the most marked laxative effect are water, cracked wheat, bran biscuit, coffee (for some), fruits, green vegetables and oils.

Prohibited Foods.—Excess of meats, salted, potted, preserved or smoked fish and meats of all kinds, too many eggs, boiled milk, wheaten flour, gruels, thick broths, maccaroni, tea, cheese, nuts, huckleberries, cocoa, chocolate, wines containing tannic acid and alcoholic beverages.

Let me quote a few suggestions given by Smith: "Sip at least one glass of cold water before breakfast; take at least three of the most laxative foods during the day; take Graham, whole wheat or bran bread at least once a day; take two kinds or more of coarse vegetables besides potato with dinner; take a different kind of fruit at each meal; do not drink while eating, and never more than the equivalent of one glass of liquid, and that immediately after the meal; more water may be taken between meals, but only one glass at a time."

Exercise.—This also is a very valuable agent in the treatment of chronic constipation, all authorities being agreed that it increases the frequency of the stools. The indoor exercises, as bowling, boxing, basketball, etc., are good, but not so effective as those that can be taken in the open air. Exercise stimulates the bowels to greater activity and also strengthens and builds up weak bodies. The various exercises should be well balanced, several short brisk periods of mild exercise, which divert the attention, being much more effective than strenuous ones lasting a long time. The amount of exercise that can be taken by different individuals varies, consequently it is safe to begin with a little light exercise and gradually increase it as the patient gets stronger. Preferably they should be taken in the open air amid pleasant surroundings, but the gymnasium, living room, etc., can be utilized. The exercises should be adapted to one's surroundings, conditions, occupation, age, etc.

Walking is a very pleasant, popular and very effective exercise. Of it Gant remarks that it "not only encourages the bowels to act more regularly and effectively, but also sweeps the cobwebs from the mind, makes the whole world seem brighter and gives a more cheerful outlook upon the future."

Golf is an excellent exercise, as are horseback riding, driving, swimming, and rowing for pastime.

Running and rowing in competition are almost too strenuous and better left alone.

Medical gymnastics are special exercises that can be carried out at home or in the gymnasium, and are adapted especially to the cure of chronic constipation. The best time for these is on arising or at bed time. Their chief action is the strengthening of the abdominal muscles and improvement of the intestinal circulation. They should begin lightly, be gradually increased and continued for weeks or months. The patient should always be in loose-fitting garments.

The best and most effective of these special exercises are: (1) Stand erect with the legs together and slowly bend the upper part of the body to the left as far as possible and then to the right in the same manner; (2) take the same position and, without bending the knees, slowly bend forward and downward until the tips of the fingers touch the floor in front of the toes; (3) lie flat upon a firm bed, table, or floor, with the legs held rigidly together and raise the body to a right angle with the limbs; (4) reverse the procedure by raising the stiffened limbs until they are at a right angle with the body; (5) standing erect, with the hands crossed behind or extending fully above the head, quickly change to the squatting posture (Gant).

Many people derive benefit from the use of a cannon or bowling ball rolled over the abdomen. This should weigh about five pounds and be covered with chamois skin. It should be used night and morning, should follow the course of the large bowel, and the patient should thoroughly relax the abdominal muscles during the treatment.

Hydrotherapy in its various forms is an essential part of the treatment. Internal hydrotherapy consists of the use of enemata, and irrigations and the drinking of water. The frequent injection of large quantities of water is very injurious, good result being accomplished with a much smaller quantity, from one to three pints. Small enemata, either high or low, may be resorted to for a long time without harm. The temperature of administration is quite important, cold water being indicated because of its tonic effect. The best result in habitual constipation is obtained by the daily injection into the colon of from one to three pints of water at a temperature of 70 to 80 degrees. Gradually, as the evacuations become normal in amount and number, the frequency of the injections is decreased and the temperature lowered until it reaches 65 to 70 degrees. Finally they are stopped altogether. Enemata are very useful in the initial stages of the treatment, and, in that form of constipation characterized by Hertz as dyschezia, the use of graduated enemata containing decreasing amounts of glycerine may be all that is necessary to effect a cure. In dyschezia the sensibility of the rectal mucous membrane has become blunted, the reflex lost, and the rectum is filled with dry, hard feces.

Water drinking is invaluable. Indiscriminate drinking should be condemned, usually about six glasses a day being all that is necessary. The effect is much better when it is taken in small quantities, as a half glass at two-hour intervals,

than when larger quantities are taken at longer intervals. In mild cases the temperature should be about 70 degrees; in the obstinate cases 60 to 65 degrees and never under 50 degrees. Ordinarily a constipated person should drink about one and a half glasses on arising and lesser amounts during the day, as stated above. The drinking of large quantities of cold or iced water at meals is harmful, but the drinking of cool water in moderation has a healthful influence on the alimentary tract. Cool water has a tonic effect, but warm water is sedative and relaxing to the intestines, hence should not be taken by those suffering with atonic costiveness. Very hot water stimulates peristalsis, but is harmful to the stomach. Copious water drinking favors the elimination of toxins, softens the feces, stimulates local and general circulation, and in various ways improves the condition of the patient (Gant).

External hydrotherapy is often used, cold plunge baths, sitz baths, alcohol rubs, etc., being valuable adjuvants in the treatment, their good effect being due to their general tonic and stimulant actions on the whole body. If a hydrotherapeutic institute be available the Scotch douche and other applications of water may be tried with success.

Abdominal Massage, when systematically applied, is very valuable, but should be used daily over a period of several weeks for benefit to occur from its use. At first the manipulation should be light and of short duration, both the duration and the force being gradually increased. Pressure massage is the best form to use, and the force should be applied to the deeper muscles of the abdominal cavity. The cecum, ascending, transverse and descending colons and sigmoid flexure are massaged in order. The massage should never be given earlier than one hour after meals, and never unless the bladder is empty. Before breakfast is the ideal time because then the stimulus from the massage is added to the natural stimuli and defecation made all the more apt to occur. If this is impracticable bed time is the hour of choice.

Mechanical vibration is often helpful, though not so useful as the manual massage, and the results are not so lasting as those obtained from the latter.

Electricity has been tried in all its various forms with only indifferent success. The Faradic and galvanic currents when used along with the other measures may be of some service, though I have had no personal experience with them.

The psychic treatment alone will cure certain cases due to hysteria. In all cases we should use the power of suggestion and should keep our patient in a cheerful frame of mind by constant encouragement and assurance that he can be cured.

In conclusion, I will say again that the first requisite in the successful treatment of chronic constipation is an accurate diagnosis. This having been made, persistence in the following of some or all of the measures outlined will be crowned by success in the majority of cases. The large number of miserable, unhappy people around us, whose ills are directly due to constipation, is striking evidence of the need of a more rational and thorough treatment of this condition.

PROGNOSIS IN MORPHINISM AND A FEW HINTS CONCERNING THE PROPER HOME CARE OF THESE PATIENTS BY THE GENERAL PRACTITIONER.

By Dr. C. B. Pearson,
Baltimore, Md.

My purpose in writing this article is to give the general practitioner some idea of what the prospects for permanent recovery are in the different types of morphinism and also to give him a few useful hints as to the proper pre-sanitarium care of these patients, hoping that thereby a greater bond of sympathy, and a more hearty cooperation will grow up between specialists in this field and the general profession that will result in good to an unfortunate class of our citizens. The severity of the attack itself, of course, is an important factor in prognosis. This cannot be determined by the duration of the habit or by the amount of morphine that is daily consumed, but must be determined by the actual amount of physical and psychical damage already done. The physical damage may be fairly well measured by one who was acquainted with the patient before he became an addict by noting the obvious present condition, the loss of flesh, strength, impairment of ambition, the changed facial expression, etc. The presence of sugar in the urine, when it does occur, indicates advanced morphinism. The severity of the peculiar psychic symptoms caused by morphine are not so easy to determine. Of course, some idea may be obtained by the degree of departure from normal in speech and conduct. As a rule, before we can tell whether the mental symptoms are of such a character as to have an unfavorable effect on the prognosis, we need to have the patient under close study and observa-

tion for some time. And then it is a matter of determining whether the mental changes are of such a character that the patient will not be likely to let morphine alone, although put in a favorable condition to do so. Experience enables us to do this with more accuracy than one would suppose possible under the circumstances. The physical damage is a matter of little import so far as prognosis is concerned, except the unfavorable effect that it may have upon the patient's mentality.

Take, for instance, a case taking 60 grains daily, I am usually able to keep such a patient comfortable on 8 grains daily, and by the end of three weeks, and often sooner, comfortable on 4 grains daily.

The removal without discomfort of from 52 to 56 grains cannot help but have a favorable effect upon the patient's physical well being. I have also seen many cases where the mental ineptitude seemed to be very profound, brighten up wonderfully with the removal of the surplus morphine. It is not the immediate mental damage that unfavorably affects prognosis, but the permanent damage, and this requires time to determine. The most favorable type of morphinism to treat are cases of straight morphinism, uncomplicated by other drug habits, or the use of alcohol, who have never been treated, and who are daily engaged in some useful occupation. The ability to work of itself indicates a fair degree of physical and mental strength. This class may always be considered favorable regardless of daily amount used and duration of habit. I believe that if our work was confined to this one class that we could get 80 per cent of cures.

The most unfavorable type of straight morphinism are those who live in idleness and seclusion, especially those who are up about the house all night—pottering about, reading, smoking, and eating at odd times and sleeping through the day. These are denied the healthy mental stimulation of work and association with other people, the benefit of sunlight and outdoor air. A person not taking morphine living under these wretched circumstances would deteriorate rapidly, mentally and physically. The accumulation of toxins on account of the interference with elimination caused by morphine and further increased by lack of fresh air, sunlight and exercise, must make rapid inroads on the patient's mental and bodily strength. The family doctor could do much in these cases toward increasing the probability of ultimate recovery, by putting the addict into a normal environment, preferably some healthy outdoor occupation, regular meals, regular hours of sleep at the proper time in the twenty-four hours. If this can be accomplished, it takes the addict out of an unfavorable class and puts him into a favorable one.

The mixed cases, i. e. those who use some form of opiate and in addition one or more other narcotics or alcohol; such drugs, for instance, as cocaine, choral hydrate, the bromides, canabis indica, hyoscine, etc., form an unfavorable class. It is a well-established fact that any one of the many forms of opium will satisfy all craving for narcosis.

A knowledge of this fact should enable the family physician to convert one of these mixed cases into a straight case of morphinism. Of course, it is needless to say that if the mixed drug taker is not already using some form of opiate, he shou'd not attempt th's. Perhaps the best way to accomplish this would be to put the patient to bed under the care of a competent nurse and administer such amounts of morphine as are needed to keep the patient comfortable. The family physician might consider this a most opportune time to reduce the amount of morphine to what he would consider the proper quantity or perhaps cut it out altogether. Let me say that reducing the morphine or cutting it out without making a nervous wreck of the patient is a trade by itself and a job that the family doctor and trained nurse had better leave severely alone. Any attempt of this sort would be likely to result in confusion worse confounded. And as soon as the patient passed out of the control of the doctor and nurse, he would most likely be a worse mixed drug taker than ever. No! The purpose here is to convince this addict that he can live more comfortably on morphine alone than he can on a half dozen drugs and whisky. And certainly he will not be convinced of this fact if he is kept miserable all the time. No! Be generous with the morphine, give rather more than is needed for actual comfort so as to be sure to accomplish the object in view. I believe it to be just as much the family doctor's duty to do this as it is for him to give the best possible care and counsel to his tubercular patients.

He should do this for precisely the same reason; that is, to put the patient into a condition of better health, increased usefulness, and to prolong his life. And not only this, but put the patient into a condition where we who are engaged in this line will have a much better prospect of bringing about a permanent cure. Furthermore, the mixed drug taker is in a very dangerous condition. The straight morphine addict may live on for years. Not so the mixed drug taker; the danger of imme-

diate death is by no means inconsiderable. A hypodermic syringe is a very dangerous weapon in the hands of an addict, who is so full of whisky, cocaine, and morphine that his memory is obliterated, and senses so benumbed that he cannot remember when he took the last dose and cannot estimate how large the dose is that he is now about to take. It does not take a person with a lively imagination to perceive that a death may very easily take place under such circumstances. It may be said that this same thing may happen to the straight morphine addict. I do not deny the possibility. But knowing the straight addict as I do, and knowing his peculiar methods of thought and about what he is likely to do under given circumstances, I should consider it extremely unlikely that any such thing should happen to him. And whenever I see the report that addict so and so died from an overdose of morphine, I am inclined to doubt the accuracy of the report. There is not only the prospect of immediate death to consider in the case of the mixed drug addict, but the asylum or the grave awaits him at no distant date. And if his sanitarium treatment is too long delayed, it is likely that sufficient permanent damage will have been done to his brain as to make it probable that he will lack the mental stability to remain cured for very long, even if he is cured of his addiction.

We have another unfavorable type of morphine cases in those who have taken treatment many times and have relapsed each time. Sometimes in a few days, or in a few weeks, months, and a few relapsing after several years.

Overindulgence in alcohol accounts for a considerable number of these cases of repeated relapse. A long siege of painful illness or injury will account for a few, especially those who go for a number of years without relapse. But there still remains a large number of cases of this sort that are by no means easily accounted for. I will offer this explanation, which I think may account for some of these cases: Suppose Mr. B., a normal young man of the average attainments and capabilities, gathers together a sufficient sum and embarks in the hardware business and fails. After a long period of effort, self-denial and economy, he gets together a sufficient sum a second time and fails, and the third time he fails. Now, I fancy if a friend were to step in and furnish ample backing for a fourth venture that Mr. B. would not be likely to make a brilliant success. His self-confidence and expectation of success would be shaken. His alertness and mental vigor would be dulled. I fancy it is thus and even more so with the morphine addict. I know of one case that relapsed eleven times and made good the twelfth time. But the time of all times for the morphine addict to secure permanent results for himself is the first time that he finds himself free from all desire or need of his morphine.

There are a number of addicts who think that they can save money and shorten the period of their stay in the sanitarium by reducing the amount of morphine that they are using to the lowest possible limit. As a theory this is very nice. In practice it is not so. When such a case comes in their nerves are all in a tangle and I have to raise the amount for a few days until they are in proper shape for me to start them down the line. When a morphine addict who is a physician tries to do this or tries to cure himself of morphinism, the results are apt to be tragic indeed.

Whenever I see the report that Dr. So and So died from an overdose of morphine (I have mentioned before that I am skeptical on this point), I wonder if he really did not kill himself trying to reduce his daily quantity of morphine or in trying to cut it out altogether. A doctor's wife once wrote me asking me if I did not think I could straighten her husband up in two weeks so that he could resume his practice. She wrote that her husband had already reduced himself from 20 grains per day to 1½ grains. And she further added that he was taking 1-100 grain hyoscine every four hours, 15 grains of chloral and 30 grains of sodium bromide every two hours, 5 m. F. E. cannabis indica every four hours, and a quart of whisky during the day to steady his nerves. She wrote that he could not seem to reduce the quantity any lower, and in spite of all he was taking he was awful nervous. I wrote at once to cut out the whisky and other truck and for him to take morphine enough for comfort and that it would make but little difference to me in treating the case, whether the doctor took 10 grains, 20 grains or 30 grains per day. The picture the good lady drew of her husband's condition, unfortunately, is not a rare one, but a very common one. So the reader can readily see that when I suggest that perhaps Dr. So and So died not from an overdose of morphine, but either from an effort to reduce the quantity or from an effort to cut it out, that my suggestion falls within the range of probability. Let me say here that the prevalent notion that the morphine addict has a tolerance for poisonous doses of all sorts of narcotics is a mistaken one. The fact that many have lived through poisonous doses of powerful narcotics other than morphine is simply due to a fool's luck. And it is true that

many have been killed by such doses. I think the percentage of killed would be no higher were such doses given to normal people. It is true that the distress caused by unwise morphine withdrawal is so great that reasonable doses of any other narcotic will not quiet it. In conclusion, I would say, let the morphine addict live in the open air, night and day, as does the tubercular patient. But unlike the tubercular patient, let him follow some useful employment, preferably in the open. In this way elimination will be more active, and he will be better able to withstand the ravages of the drug on both mind and body, and also be a much more favorable patient for us to treat.

There are many minor factors that may favorably or unfavorably affect the prognosis, that I have purposely avoided mentioning to prevent confusion.

Morphinism may be divided into many more types than I have used. I wish these three types to stand out clearly in the general practitioner's mind.

1. The straight morphine, or other form of opium, taker who works and who has not had his will broken by repeated relapses. This is the favorable type, regardless of quantity used or duration of habit.

2. The morphine taker whose environment is bad through seclusion and idleness.

3. The mixed drug taker.

In these two last types, although the prospects in general are poor, we many times get brilliant results. Their situation is so alarming that there is the greater need of something being done for them. In these last two types we need the help of the family physician and need it greatly.

THE COMMON COLON BACILLUS.*

By Chilton Thorington, M.D.,
Montgomery, Ala.

The common colon bacillus has been chosen for discussion today because it is a subject of equal importance to the physician and surgeon, the bacteriologist, hygienist and sanitarian. The biologic importance of this germ is found in its wide range and economic relation to the animal physiology. Although the natural inhabitant of the intestine of man, and some of the lower animals, the colon bacilli are demonstrable in the air, soil and water, which occasions no wonder, considering the many vicissitudes to which feces are subjected. The organism taken as a type of this class was studied by Escherich in 1886, cultures being taken from feces of newly-born, breast-fed infants, to which he gave the name bacterium coli commune.

The morphologic appearance of the colon bacillus varies, being cocci-like, ovoid, short, or even long rods, showing rounded ends and sharply defined areas upon proper staining. Flagellae are not numerous. Although non-motile as a rule, slight, or active, motion may be noted in some specimens.

Aside from the pathology that might be occasioned by the colon bacilli, they are of special interest because of their resemblance to the typhoid bacilli. However, the following cultural characteristics of the colon bacilli are sufficiently trustworthy for their recognition and differentiation: (1) Stab cultures on gelatin show bubbles along line of inoculation, but the gelatin is not liquified; (2) milk is curdled in 24 to 72 hours, with formation of lactic acid; (3) dextrose and lactose are fermented with production of gas; (4) indol is formed in peptone solutions. Other cultural characteristics are advocated, but need not be mentioned here.

The colon bacilli undoubtedly play an important part in the physiologic economy of man, but on the other hand appear to be capable of starting and maintaining some very interesting pathology, represented, as it were, by well-nigh all the "ites" common to the flesh, a few of the most interesting being meningitis, conjunctivitis, otitis (media), bronchitis, pleuritis, hepatitis, pancreatitis, appendicitis, cholangitis, pyelitis, cystitis, arthritis, etc. They may be the only demonstrable organism in infected wounds, and, as pointed out by Hewlett, are usually the organisms causing peritonitis when due to infection from the intestine, as in hernia with obstruction, or perforation; in cancerous growths and in affections of the appendix. Although the ascription of these processes to the common colon bacilli, per se, is maintained by many authorities, there are others whose opinions are not in sympathy with such teachings, but deny in this organism such unaided activities, claiming them in most part to be benign, and only capable of causing symptoms when associated with other organisms. We have no authority to state the colon bacillus conjugates with other members of the flora to form a composite morphologic entity, or genus. However, in most of the pathological processes, where the colon bacilli

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are conspicuous, other bacteria are frequently found. It also appears to be a fact that the bacillus does not grow on healthy mucous or serous membranes, e. g., in the vaginal tract they are generally found, but without provoking inflammation. However, under certain conditions, whether by some aberration of the "lateral side chain" legend, chemical, or biochemical, we know not which, but do know that when mucous or serous membranes are no longer healthy any resulting inflammation is frequently accompanied by considerable increase in numbers of the colon bacilli.

It would lead us too far afield from the purpose of this paper to enter into a discussion of the pathogenicity of the colon bacillus, therefore, it will serve our purpose to consider only such pathology as is most commonly met with, viz: cystitis, pyelitis and cholangitis, as in other processes material has been too sparse with me to justify conclusions.

From 535 selected urinalyses made since 1911, care being taken to exclude all analyses made for the same party more than once and, also, those analyses where the sex of the patient was not stated, I found that out of 281 urinalyses made for males the colon bacilli were found in 56 specimens; the proportion being about 1 to 5. Out of 254 urinalyses made for females the colon bacilli were found in 128 specimens; the proportion being about 1 to 2. It might at first sight seem that these proportions are large, but it must be remembered that the specimens of urine examined were from supposedly abnormal patients, and do not by any means represent probable findings from the normal and abnormal alike. The greater number of females infected is undoubtedly due to anatomical reasons, i. e., the close proximity of the lower bowel to the genito-urinary tract. For the same reason it would also appear that cystitis, pyelitis and cholangitis, when due to the colon bacilli, have their infection from the lower bowel and not through the circulation; therefore, in females neglected perineums and the improper use of toilet paper probably accounts for so many infections among their sex. Males could easily become infected by females, in fact, it is not uncommon to note a like infection in husband and wife. The finding of the colon bacilli in one should be followed by a search for them in the other. This should not be neglected, as neither the husband nor wife are apt to receive benefit from treatment unless both are treated; one will be almost certain to re-infect the other. Male infants are probably infected by their own dejecta when permitted to wear for too long a time soiled napkins. I have observed two pronounced cases of pyelitis in the young infant, where the colon bacilli were numerous in the urine, but do not recall a single case in young males between the ages of three and twelve. A few cases in young unmarried men have come to my notice, but they did not deny their unchastity. Pyelitis is not uncommon in young females; indeed, it is surprising how many cases are brought to light by urinalyses.

The symptoms of cystitis, pyelitis and cholangitis are too well known to relate here; however, in pyelitis some of the symptoms may so simulate those of other affections as to call for special notice. In the young where there is a pyelitis of the right kidney, the symptoms may so exactly simulate those of appendicitis as to admit of a provisional diagnosis only, until lacking symptoms and laboratory findings reveal the true nature of the case. In young female patients presenting symptoms of appendicitis it should not be forgotten that the symptoms could result from a pyelitis on the right side, although fever and localized pain are quite suggestive. A leucocyte count and urinalysis might make clear at once the diagnosis. Pain in the right lower quadrant of the abdomen in the young male is more suggestive of appendicitis than in the female, because a pyelitis in the young male is considerably less frequent.

Again the chill, fever and sweats resulting from a pyelitis or cholangitis, might be mistaken for symptoms resulting from malaria, and only by microscopical examination of the blood and urine can the diagnosis be made sure.

In making urinalyses for the detection of the colon bacilli it is always advisable to obtain catheterized urine, care being taken to carefully cleanse with sterile water the meatus urinae. Reject the first few drachms of urine withdrawn. Ureteral catheterization offers the advantage of locating the diseased kidney, and when the pyelitis is of tubercular origin should always be done in order to establish whether the process is uni-, lateral or not. Centrifugalization expedites technique. The urine in pyelitis is usually increased in quantity, pale, of low specific gravity, and acid in reaction. It usually contains albumin, and when there is an accompanying nephritis the amount of albumin will exceed that which could be accounted for by the presence of pus. Casts are not infrequently found, and indican is present in about a third of the specimens examined. The colon bacilli are the most conspicuous organisms,

but others are usually found, such as streptococci, staphylococci, diplococci, and tubercle bacilli. In all cases of pyelitis where pus cells are present in the urine a search for tubercle bacilli should be made unless the patient is known to be otherwise normal.

In cholangitis the urine may be dark in color, turbid, of high specific gravity, acid reaction, and frequently containing globulin albumin, bile pigments, indican, tyrosin and leucin crystals. A probable diagnosis of cholangitis might be made on these findings alone, but when taken in connection with the usual symptoms of the disease, diagnostic errors should be infrequent. In two such cases the colon bacilli were found in pure culture in the opened gall bladder.

In some specimens of urine the colon bacilli are found only after careful search, the specimens first having to be stained, as frequently they may become so agglutinated as to bear the appearance of debris. Again they may be found crowded in lymphocytes, epithelium or mucous plugs.

The treatment as a rule is satisfactory where the cystitis, pyelitis or cholangitis is due principally to the colon bacilli, but etiologic treatment, with stock vaccines, of the colon bacilli, did not influence the course of a single case in which it was tried. Possibly autogenous, or mixed, vaccines might have given better results. Hexamethylenamin probably represents more than any other drug the exact chemical limitant of the action of the causative organism, but to be of any real value must be given in quite large doses, e. g., 30 to 60 grains in twenty-four hours, well diluted, considerable water being drunk throughout the day; otherwise over activity of the drug will become manifest. Methylene blue is deserving of trial are also some of the essential oils, Where there is an accompanying indicanuria sodium benzoate combined with the hexamethylenamin has given good results, and Carlsbad water is of service when the liver is torpid. It should be drunk according to directions. Should the urine be alkaline sodium phosphate (preferably effervescent) might be given night and morning in connection with the above treatment. Females with lacerated perineums should have them repaired. Children's toilet should be carefully looked after, especially as relates to proper bathing of the vulva and perineum. Mothers should see to it that soiled napkins remain on their infants no longer than is absolutely necessary. Last, but not least, manufacturers of toilet paper should be required to print on each package of toilet paper some suitable instructions for females.

In closing I wish to say I deeply regret that my time and opportunities have been too limited to give this subject the mature and careful consideration its importance demands, but shall feel fully repaid for my labors should this paper stimulate others better equipped and qualified to bring to light, by practical methods, such pathology as is occasioned by the common colon bacilli.

Montgomery, Ala.

HOME TREATMENT AND NECESSITY FOR EARLY DIAGNOSIS OF CONSUMPTION.

By E. B. Hardin, M. D.,
Florence, Ala.

Tuberculosis has been a destroyer of human life as far back as history records. Its clinical picture was as well drawn by Hippocrates as in this century. So constant has it been and so fatal apparently in its results, that humanity until recently has looked upon it with a passive attitude, thinking, no doubt, that it was in some mysterious way connected with Providence and but a decree of a fate not understood. Happily this idea has, except among the very ignorant, been dissipated. The question is now not merely a medical one, but a sociological problem, and the powerful forces of social organization have been put in motion to co-operate with the medical profession. The newly recognized truths are being proclaimed from pulpit and lecture platforms, by national, state and municipal bulletins, by health officers in all departments, in the schools and by placards and moving pictures and in many other ways, but particularly by the National Anti-Tuberculosis Association.

Anything so widespread in its nature, so insidious in its approach, so thoroughly infectious and so great a menace to society at large, becomes by virtue of its destructiveness a sociological problem, and is already so recognized. It is estimated that more than 90 per cent of the civilized human race have at some time in their lives, in some portion of their bodies, had a tubercular infection. This looks as though the disease was indigenous in man. Mortuary statistics show that one-seventh of all deaths are the result of tuberculosis. If practically everyone has an infection in some part of the body at some period in their lives, and only one-seventh die of it, it is reasonable to suppose that practically

six-sevenths recover. This demonstrates its curability. The most lamentable fact connected with the tragic record of this destroyer is that of all deaths that occur between the ages of 18 and 45 one-third are due to tuberculosis; a terrible toll, and in that period of life when the earning power is at is highest. With this short preface I desire to suggest some points that have been worked out by others more able, but which have not been sufficiently impressed on the rank and file of the medical profession. The need is urgent that physicians in rural villages and small cities and usually among people of limited means, who would not be able to get the superior treatment to be secured in a sanitarium, yet where sanitariums are not available, be more alive to the home treatment of such cases.

Physical Diagnosis.

In incipient tuberculosis of the lungs it is frequently impossible to detect evidences of trouble by the usual physical methods, including auscultation and percussion, even by experts. In the hands of those who are not constantly doing chest examinations, requiring not only a trained ear, but skillful technique, the results are seldom of value. By resorting to other means the results compare favorably with those of the specially trained. It is always imperative that the diagnosis be made before any gross signs appear. Therefore if the thermometer is used, a record of the pulse kept, a history of loss in weight, of fatigue or cough, and finally if the opinion thus formed is corroborated by the tuberculin test, it will be possible to make an early diagnosis.

Sputum Examinations.

The discovery of tubercle bacilli in the sputum makes the diagnosis positive. Their absence does not preclude their presence elsewhere. The habit of waiting until bacilli are found in the sputum is pernicious. The responsibility of the physician cannot be exaggerated in such cases and the fatal cases will not be greatly reduced until this responsibility is fully realized and methods adopted that will discover the incipient and therefore most curable cases.

Starting out with premise that nearly everyone has either a healed process or a sealed up infection, there is always present the possibility of a reinfection, or a breaking down of nature's wall around the bacilli that have been sealed up. Therefore, when, following any illness with tardy convalescence, or by reason of severe physical strain, with insufficient air and food, a patient applies to a physician for advice, it is unscientific to pass the case over as one of anemia or some other equally familiar term.

Fever.

By reason of its prognostic significance fever is the most important symptom. In any condition in which the daily temperature is slightly above normal the cause should be sought out. The sub-normal morning temperature, with a slight elevation in the afternoon, is very suggestive. The only way to determine its constancy is by the systematic use of the thermometer. This should be done several times per day over a period of several days or weeks, and a careful record kept for the physician's inspection. The fever is due to toxic material being absorbed into the circulation. It is often found that the temperature is not in proportion to the involvement of tissue. A cavity with free drainage will not afford as much chance for absorption as retained toxic material in a small infection.

The presence of fever is an absolute obstacle to improvement. The condition must be met with rest. In persistent types, rest in bed is necessary.

Pulse.

In young pulmonary cases it is found that the pulse will be much accelerated on the slightest exertion. The quick pulse, due to the toxic absorption, is often present when both temperature and respiration are normal. This symptom must be met as in fever, with rest.

Tuberculin Tests.

No agent is of greater value in making a positive diagnosis of incipient tuberculosis than some one of the tuberculin tests. The method is fully described in each package supplied by the manufacturing pharmacist and should be used more by the general practitioner than is customary in all suspicious cases.

Home Treatment.

The treatment of tuberculosis is different from that of most diseases, in that this is a chronic trouble, extending in most instances over a period of three years. This applies particularly to those with a fatal termination. Due to the fact that the two most powerful friends of the bacilli of consumption are ignorance and poverty, the greatest toll comes from this class. In the discussion of treatment it is not the purpose of this article to treat of the ideal management of the victims of this disease. It is merely one of expediency. With a patient in poor financial condition, to talk of a far-away climate or of a sanitarium is but mockery. To go away from home to a place

supposed to be ideal in all appointments should not be undertaken without at least one thousand dollars available. The thousands of stranded victims, far from home, present a tragic picture.

The importance of climate is overestimated in its therapeutic possibilities. Climate under the most ideal conditions is but one item of necessary environment. That climate which gives the largest number of sunny days, enabling the patient to remain out in the fresh air practically all the time, is most desirable. Comfort of the patient conduces to his general upbuild, but it is largely a matter of altitude rather than latitude. Again it is true that the climate that is best in one season is unsuitable at another time of the year. It has been the writer's opportunity to have had patients in Colorado, New Mexico, Florida, New York and North Carolina, and as far as results go, they did equally as well in one location as another. I have almost equal results, taking into consideration financial condition, etc., with those who stayed at home and followed instructions as faithfully as though they had been in some distant sanitarium. I do not mean to undervalue the advantages of climate for reasons given, nor sanitarium treatment, for I would unhesitatingly send all tubercular patients to a sanitarium if it were possible. I recognize fully the advantages to be secured there. Rest, food, air, with supervision of the habits of the patient, and his education in the proper disposal and care of the sputum, and the host of other matters of detail; and last, but not least, the proper administration of tuberculin.

Rest.

In the presence of fever rest is the most important consideration. This is the most troublesome question that can confront the physician. He recognizes that the patient requires rest and on the other hand, the struggle for existence on the part of the victim precludes rest. Under such circumstances the big heart of the doctor is severely tried. Each case, taking into consideration the environment, financial and mental condition, and progress of the disease, must be considered as conditions arise. A plan of campaign should be mapped out and the patient and family should be made parties to it, with the idea that it will require concerted effort over many weeks and possibly months. In such instances the individual characters of the family are given an opportunity of developing those sympathetic and generous tendencies so impressive in their constancy.

Exercise with elevated temperature and fast pulse must be prohibited, as the process of repair is hastened by compulsory rest and a conservation of energy. Breathing exercises must not be practiced during febrile conditions. Often it is necessary to limit the expansion of the lung with a cavity, by the application of adhesive strips placed about the chest.

Diet.

The importance of diet rests upon the demonstrated fact that nutrition is the one most vital necessity of nature's constructive effort in the arrest of the disease. For practical purposes it may be assumed that improvement in health is in direct proportion to the gain in nutrition. In the vast majority of cases it is not so much a question of getting the ideal diet, but of getting the bare necessaries to sustain life. Food rich in proteins is necessary. Eggs and milk have been prescribed in reckless disregard of caloric values or of digestive ability. The diet must be not only rich but assimilable and not bulky. Super-alimentation should be practiced only when the digestive functions are able to handle the excess. When the patient is in a state of rest it does not require as much food as when there is a drain on the organism from exercise.

Tuberculin.

Tuberculin is in general use by most specialists in treatment of tuberculosis. Soon after its discovery, on account of improper use it fell into disgrace. By more recent careful investigation in the hands of competent investigators, it has come to be recognized as a most important remedial agent as an auxiliary to rest, fresh air and diet.

My limited observation and experience leads me to believe that the watery extract of tuberculin manufactured under the direction of Dr. Karl von Ruck, of Asheville, N. C., is very satisfactory. It is safe and easily administered, and when properly administered there is no unfavorable reaction. In incipient cases the tuberculin administration is of great benefit.

In this connection it may be well to mention the vaccine to prevent tuberculosis, prepared under Dr. von Ruck's supervision and which he originated, and which has been tested in nearly one thousand cases; and after ten years the patients show immunity to tuberculin tests. In families in which there is an active case of tuberculosis, with infinite opportunities for infection of other members of the family, this

agent should make a strong appeal. It is particularly indicated in children, one injection giving immunity. The reaction is very slight, producing only a little tenderness of the arm for a day or two.

In conclusion I would like to impress on my readers the necessity of making an early diagnosis. Plan the campaign for the patient. Have out-of-doors sleeping quarters arranged, or, where the weather is too cold, substitute a window tent after the style of Dr. Knopf. The details must be studied out more carefully than can be barely mentioned in this brief summary. Rest, fresh air and diet, with judicious administration of tuberculin, offer the rational treatment in our present knowledge of the disease.

A DESCRIPTION OF AINHUM AS SEEN ON THE CANAL ZONE, WITH REPORT OF INTERESTING CASES OCCURRING IN ONE FAMILY.*

By Henry Weinstein, M.D.,
New York, N. Y. Formerly Colon Hospital, Cristobal, Canal Zone.

In the evolution of medicine many diseases of obscure origin have been unraveled and put on a rational basis. It is true that some of these diseases are rare and have no practical significance, but are, nevertheless, quite interesting. As the cases present themselves they are recorded in the literature as curiosities and the individual authors suggest ideas as to their origin; most often these suggestions are made on a theoretical basis. One of these diseases is ainhum, and I wish to present a resume of this interesting condition and record cases of unusual interest that have come to my attention.

Ainhum, dactyolysis spontanae, is a tropical disease, of great chronicity, generally limited to African and East Indian peoples, characterized by spontaneous amputation of the little toe of one or both feet, although very rarely other toes may be involved. A most characteristic feature of this affection is the peculiar constricting ring formed over the affected toe or toes; in fact, this constricting ring is the most pathognomonic sign of ainhum. Pathologically ainhum presents marked trophic changes in the diseased parts.

Although very rare in the United States, where most cases have been noted among the negroes in the Southern States, in West Africa, especially along the Gold Coast, it is not uncommonly met with. The first case was recorded by G. Messum[1] in 1821, and by Clark[2] in 1860, but it was not until 1867, when Dr. J. F. da Silva Lima,[3] of Bahia, completely described ainhum, including the pathology by Dr. Wucherer. He found it present exclusively among the descendants of the old African slaves. A. Collas[4] and Crombie and Crawford[5] found the disease among Hindus. Collas was the first to suggest that it is a form of dactyolysis lepra spontanae. Since then ainhum was found in many tropical and sub-tropical regions. It was found particularly prevalent in the West Coast of Africa, the large Brazilian sea coast towns, India and the West Indies. N. D. Brayton[6] gives a very excellent resume of ainhum, with a complete bibliography of cases in the United States. Up to 1905 not more than twenty cases of this condition had been recorded in the United States. For obvious reasons, ainhum is not uncommon in the Canal Zone; nearly all of us have seen one or more cases in the course of our experience on the Isthmus.

Almost all the cases described were observed in men; occasionally it has been met with in women. The fifth toe is the one most often involved. In fifty cases described by da Silva Lima, only five had the disease in others besides the little toe, e. g., the fourth, but very rarely indeed in other toes. Essentially it is a disease tending towards symmetry, first commencing in the little toe of one foot and then attacking the fifth toe on the opposite foot, or both little toes may be involved simultaneously. It is a chronic disease lasting from five to twenty years, although cases running a more acute course and lasting not more than two or three years have been observed. Heredity plays an important role, as is seen in the cases described by da Silva Lima, Dhuring and myself. Age is quite an important factor; it rarely attacks those who have not reached adolescence. In following up the literature, I was struck by the comparative old age of some of the patients, as well as the unusual advanced age in some of the members of their families. As already remarked, ainhum has been met with almost exclusively in dark-skinned races. Da Silva Lima, who made extensive investigations, was unable to find the disease among the Brazilian natives or among the Creoles. It is also interesting to note that in several cases reported in America there is a history of direct African parentage.

Ainhum generally commences as a small circular

*Read before Isthmian Canal Zone Medical Association, February, 1912.

depression at the internal and inferior aspect of the root of the little toe on a level with the web. Manson[7] has sometimes seen a small ulceration in that region at the beginning of the disease. The depression increases in depth and width and gradually works along the entire aspect of the toe. Most often the groove is found over the first interphalangeal articulation and next frequently right over the second phalanx. Later on, the toe is surrounded by a groove one-fourth inch to three-eighth inch in depth, the outer aspect of the toe being the last involved. The skin in the immediate vicinity of the groove is thick, dry, tough, and scabous. It is firmly adherent to the underlying structures, so that attempts to move it are entirely disappointing. There is generally no inflammation, induration or ulceration, and movement of the toe is not impaired except in the last stages, when it is abnormal on account of the long, fibrous pedicle. Although there may be no pain in the beginning of the disease, it is very severe during its course. Why the text-books describe it as painless is a mystery to me. I found that in most of the cases I read about in the literature, pain was a very characteristic symptom. It is particularly noticeable over the groove and bitterly complained of even when at rest. The part of the toe distal to the fibrous ring increases in size to about twice or more than the original and assumes the shape of a large cherry or a small potato. The plane of the toe is changed. The affected part gradually separates from its neighbor and falls off spontaneously or is removed by interference. The wound formed generally heals well, although ulceration may take place, due to the uncleanliness of the people affected. Of the nervous manifestations one must mention that there is no muscular strophy, that the sensory disturbances are diminished or increased, but never entirely lost. In my cases I have also demonstrated the absence of the plantar reflexes, whereas all other reflexes were unaffected. There are no constitutional symptoms.

Wucherer,[8] Schuppel,[9] Dhuring,[10] Eyles,[11] and more recently Darling, have made thorough pathological examinations of specimen toes taken from patients suffering from ainhum. Although their reports differ somewhat, yet, in the main, the findings are similar. Of course, the pathological findings vary greatly with the stages of the disease. I will attempt to give a resume of the findings in a well-marked case.

The epidermis is increased, the stratum lucidum slender, the papillary layer elongated, and in the rete Malpighii the pigment is found irregularly distributed. The constricting ring is made of dense fibrous connective tissue covered by a layer of epidermis. The process travels from the base at the constricting band, gradually to the top, involving all the structures in proper turn, and while the proximal parts show atrophy, the distal parts show degenerative changes.

In the part distal to the constricting ring the pigmentary layer shows many germinal cells, while in the neighborhood of the ring the deeper layers of the skin show atrophy. The corium papilla are elongated, the surrounding capillaries dilated, and the perivascular lymph spaces are filled with corpuscular elements, especially young connective tissue cells.

The subcutaneous tissue is increased at the expense of muscle, tendon and soft parts, while here and there may be seen islands of fat cells. The sweat glands are very much atrophied and in the spaces between the glands there is a great deal of cellular infiltration, consisting of young connective tissue cells, fat, and lymph cells. The original cells show cloudy swelling, together with granular and hyaline degeneration.

The blood vessels are everywhere numerous; the larger arteries are engorged, all the coats thickened by the connective tissue replacement, including the proliferation of the subendothelial connective tissue, leading ultimately to endarteritis obliterans. The smaller arteries show very much thickening of the adventitia and much perivascular infiltration. The veins are dilated, thickened but empty. The lymphatics are also dilated and the lymph spaces in a state of engorgement.

In the bone there is a condition of rarefying osteitis, advancing from the periosteal side. The destruction in the interior is rapid, the cavities filled with recticulum of connective tissue, blood vessels, numerous round cells and fat globules, the bone corpuscles being few in number. The ultimate result is the change of all the parts into dense fibrous tissue.

To summarize the pathological findings. We meet first a condition of inflammatory oedema. Later on there is found degeneration of original elements, followed by atrophy. The highly organized tissue, such as sweat glands, blood vessels, muscles and bone are all changed into connective tissue. In all there are evidences of interfered nutrition due to pressure, vaso motor and trophic manifestations.

F. C. Wellman[12] reports a case of ainhum and summarizes the various theories advanced hitherto:

1. Due to injury, foreign bodies, etc.—Manson, Eyles.

2. Self-mutilation, instruments, etc.

3. Congenital spontaneous amputation—Proust.

4. Form of mutilating leprosy—Zambace Pasha.

5. A form of tropho neurosis.—Wucherer, Scheube, Darling.

6. A form of localized scleroderma—da Silva Lima.

In addition to the above, Wellman suggests that the chigger (Sarcopsella Penetrans) may be a causative factor in some of the cases.

It is quite reasonable for purposes of discussion to combine 1 and 2 as belonging to the same category, namely, external influences. Ainhum has been ascribed to injury by foreign bodies coming in contact with the most dependent part of the foot, the little toe. It is claimed that barefootedness of the class of people affected is a very important factor. Many authors who have reported cases in the literature have ruled out absolutely external injury. If barefootedness were a cause, the natives of many countries should be attacked, whereas most of the cases reported were in negroes living in cities and wearing shoes. Da Silva Lima has not seen the disease in the barefooted Brazilians or among the Creoles. Why should the disease attack males almost exclusively and shun the barefooted women? How is the hereditary factor to be ruled out? Although the natives of Africa, India, Polynesia and other parts of the globe inflict upon themselves many injuries by wearing ornaments upon exposed parts of the body, such as nose, lips, toes, etc., yet ainhum could hardly be due to them.

3. Proust[13] contends that ainhum may be due to congenital malformations. He claims that as a result of some interference in the development of the foetus some parts may become arrested, but progress after birth causing amputation of fingers and toes; that the umbilical cord or fibrous projections may ensnare parts, causing arrested development, leading later on to spontaneous amputation.

Now, congenital amputation has been described by various authors, Reclus[14] among them. Reclus at first adhered to the same views as Proust, but later modified them. Congenital amputation is observed soon after birth or in early youth; males and females alike attacked, but females largely predominating; there are no racial characteristics; fingers, toes and other parts may be involved simultaneously; is not associated with pain and is often stationary. On the other hand, ainhum (1) occurs in dark-skinned races; (2) rarely commences before adolescence; (3) affects males exclusively; (4) involves the fifth toe, rarely others; (5) is sometimes hereditary; (6) is associated with pain; (7) is always progressive.

4. Zambaco Pasha[15] is the most enthusiastic supporter of the theory that ainhum is a form of mutilating leprosy. He studied his cases in Syria and especially at Beyrout, where leprosy is very common. Many diseases of obscure nervous origin such as syringomyelia, morphea, scleroderma diffusum and ainhum are attributed by him as leprous manifestations. Dr. Collas, who observed ainhum among Hindus, is quoted by him as holding similar views about the disease as himself.

It is to be noted that all of his cases were Caucasians of all ages and both sexes. The lesions are described as occurring alike in hands and feet, fingers and toes with irregular distribution. The clinical symptoms are those of anaesthetic leprosy, with all the nervous symptoms—anaesthesia, analgesia, electrical and thermal disturbances, together with muscular atrophy. There were also observed perforating ulcer, atrophy of the nails, and pigmentation of the skin. Zambaco Pasha also has leanings towards the hereditary tendencies of leprosy, and considers the pathological findings in spontaneous mutilating leprosy and ainhum as similar.

De Brun[16] takes issue with Zambaco Pasha. He, too, observed his cases at Beyrout. In more than 900 cases observed by him, not one was seen where the fifth toe was exclusively affected. Although he found a constricting band in some of the fingers and toes, it was rather irregular, not circular, as in ainhum.

Ainhum rarely begins before period of adolescence, anaesthetic mutilating leprosy may occur at any age. The racial factor is distinct in ainhum, but not in leprosy. Although very seldom other toes besides the fifth may be involved by the ainhum process and is often symmetrical, in leprosy fingers, toes and other parts are affected (Polymorphian). Ulcers, fissures, suppuration and other inflammatory conditions are seldom noticed in ainhum, but are very common in mutilating leprosy. Local asphyxia, which is comparatively common in affected members of leprosy, is never seen in ainhum. The hereditary factor in leprosy is denied by Manson and others. Also in leprosy one notes that constitutional symptoms and the nerve reactions are distinct.

There is quite a dispute as to the pathological findings in ainhum and spontaneous mutilating leprosy. However, Wucherer, Schuppel, Eyles and Darling have examined many specimens of ainhum

toes, but found no evidences of leprosy. Quite recently Drs. Herrick[18] and Erhardt read a paper before the society on the value of trophic bone changes in the diagnosis of leprosy. They showed a distinct difference in the X-ray findings in the bone lesions of leprosy and ainhum. Whereas in leprosy there is concentric atrophy with shrinking and shortening of both shaft and distal extremities of the phalanges, in ainhum only the distal phalanx was found primarily involved with narrowing and lengthening of shaft.

5 and 6. That the skin changes in ainhum are not unlike those seen in pure scleroderma cannot

Right Foot—Amos Hannah. Note: The light and dark spots are artefacts due to faulty developing.

be disputed. Unna holds that ainhum is a primary degeneration of the skin, a sort of scleroderma, which, by its seat of lesion at the base, leads to secondary stagnatory necrosis.

Now, scleroderma is itself considered a disease on a tropho-neuritic basis. But there are several features found in scleroderma which are lacking in ainhum. Scleroderma attacks females mostly and does not shun children. The skin affection is patchy and pigmentation is common. Osler[18] observed in his cases of sclerodactylism trophic changes in several fingers of both hands; there were scars and sores over the joints while muscular and nail atrophy was common. Even morphea, localized scleroderma, may be irregularly distributed, attacking arm, leg, trunk as well as face. There is no pain in scleroderma.

One must conclude that ainhum is a distinct disease—a special tropho-neurosis. It is necessary to take into consideration the site of predilection, the race, sex, age, symmetry and hereditary factors, the absence of constitutional symptoms and the peculiar pathological findings.

I take this opportunity to express my thanks to Col. Wm. C. Gorgas for his help in obtaining literature from the Surgeon General's library, and to Dr. S. T. Darling for valuable suggestions and pathological examination of one of the specimen toes.

The cases I will here describe are interesting in many ways. The family history reveals a strong hereditary tendency affecting all the males in three generations and apparently transmitted by the male progeny.

Case 1. Jeremiah Hannah.

Family History.—His father came to Fortune Island from Africa. He had ainhum in both toes, but suffered so much pain that he amputated them himself by means of a horse hair. J. H. has a brother who had ainhum in the left toe; caused it to be amputated a year ago. An only nephew (A. H., case 2) has the disease in the right little toe. Patient's mother had two sons previous to her marriage with his father, but neither of his stepbrothers developed ainhum. The patient knows of no other cases of the disease in the immediate or remote family. Both his parents died at a very old age.

Personal History.—He is 46 years of age and as far as he remembers always enjoyed good health. He married at the age of 26, but no children were born. Before coming to Panama, a short time ago he worked a farm on Fortune Island.

Present Illness.—Patient does not remember exactly when the process commenced, but claims that it began when he was quite young. He noticed a depression between the distal interphalangeal joint of the left little toe. Soon a constriction was discovered which became deeper and larger as the disease progressed, accompanied by pain and swelling in the region of the groove. Later on, the same process was observed in the right little toe. The pain was at times so excruciating that he could not wear boots and was

forced to lie up for long periods at a time. The pain and swelling would occur at infrequent intervals, and was often associated with peculiar prickly sensations ("burning like pepper"). Any undue exposure to cold or dampness would bring on an attack, which at times was so severe that he spent sleepless nights. There was always present a dull pain in the affected toes, but any exposure would cause it to become unbearable. The pain was always the same character in both toes, would occur at the same time and would subside simultaneously in both. Patient tells me that the constricting band has been growing deeper and larger and the pain constantly growing worse.

Examination.—There are no marked signs of disease to be found. The second aortic sound is somewhat accentuated and spleen somewhat enlarged. There are no nervous disturbances with the exception of the absence of the plantar reflexes. He is rather an intelligent negro.

Foot.—The skin is found dry and wrinkled on the dorsal surface; on the plantar surface it is very thick, hard, somewhat fissured in places, atrophic. Both little toes present about the same condition with the exception of the groove, which is deeper and wider on the left side than on the right. Also the left toe is a little more swollen than the right. The groove begins at the interdigital space about the plantar margin. Here it is fully one-half inch in depth and curves over the dorsal surface about the middle of the second phalanx. Over this region it is about one-eighth inch in depth and disappears entirely at the outer margin. In the immediate region of the groove the skin is tied down to the underlying structures and is not moveable, while the other parts are. It is hard, callous-like, but not ulcerated. The toes appear decidedly swollen, especially in the inner and dorsal aspects. They are in a disturbed position, lying in a plane facing upwards and outwards. The nails are present but roughened. Pressure on the toes causes a dull pain, while abduction is followed by very severe pain around the margin of the groove and is most marked on the left side. Inasmuch as the groove extends fully two-thirds the circumference of the toes they appear to be attached to the feet by means of a thick pedicle.

Case 2.—Amos Hannah, aged 20. The family history is given in brief above. His father had ainhum and was relieved from the suffering by amputation. Both parents and a sister are alive and well. There is nothing of interest in the early life of the patient.

Present Illness.—Began about four years ago underneath the right little toe on a level with the middle of the second phalanx, accompanied by pain and burning sensation, often of paroxysmal character and affected by cold and other external stimuli. The constricting band has grown both deeper and wider until now there is a thick pedicle separating the affected toe from the rest of the foot.

Examination.—Patient is young and rather well developed. He shows a few degenerative signs, such as small ears, very high cheek bones, large and massive jaws, decidedly large breasts and nipples, small scrotum and testicles. Chest and abdominal organs are normal. Even for his class he shows a poor mentality.

Left Foot of Jermia Hannah.

On the whole, the peculiar condition in the right toe is quite similar to the above. The skin on the plantar surface of the right foot is rough and scabous. There is no swelling or pain except in the little toe, which presents a little furrow over the middle phalanx. There is an area of blanched skin particularly at the dorsum and interdigital space. The toe is twisted so that the plantar surface looks inward and the dorsal outward, while the terminal part is swollen and club-shaped. The whole area is painful on manipulation. The

plantar reflex is absent on the right foot and there is but a slight reaction on the left.

The affected part was amputated beyond the line of the groove and the wound healed rapidly. After removal, the patient was entirely relieved from his pain and suffering.

Pathological Report by Dr. Darling.

Examination of the Ring.

(Specimen toe of Amos Hannah.)

The keratinous ring presents the usual thick horny appearance seen in this condition. It rises above the general level and is lodged in a fessa lined on either side by normal epithelium. This ring is made up of thick laminae of keratinous squamous epithelium. The stratum malphighii is relatively narrow and the corium beneath is bereft of papilla and is extremely narrow. In fact, the corium and the periosteum of tae bone so rapidly merge into one another that they can hardly be differentiated. This obliteration of the papilla, it is very evident, is due to the constricting horny ring.

The stratum malpighii increases in amount as the normal skin is approached and its cells become larger and vesicular. The papillae also become more evident, though they are still nodese and not deep and filiform as in the normal skin at this location. At the margin of the horny ring the corium is greatly altered by ulceration, for it is infiltrated by polymorphenuclear leucocytes, red cells and fibroblasts. Many newly formed arterioles and capillaries are also seen. At this point the usual picture of ainhum is not seen, but rather one of ulceration and repair.

Examination of Tissue Distal to the Ring.

The epithelium and corium present the usual deep filiform appearance usually seen in the skin of this region, and the blood vessels, sweat glands, nerve bundles and the paccinian corpuscles appear normal.

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ACUTE PANCREATITIS.*

By T. Brannon Hubbard, M.D.,
Montgomery, Ala.

Acute pancreatitis was first recognized and described by Fitz in 1889, but it has been comparatively few years that it has been known to be at all frequent. At present the pancreas occupies one of the most important places in abdominal surgery, so that I feel justified in presenting a few facts concerning acute disease of that organ.

In 1895 a successful operation for acute pancreatitis was performed by Korte, of Berlin, but he failed to make the diagnosis at time of operation. Since laparotomies have become so common the condition is found more frequently, but not often is the diagnosis made prior to operation. Deaver states that in ninety-nine cases of cholelithiasis operated by him in 1911, the pancreas was affected in 45 per cent, and he states that acute pancreatitis "is common, not rare." However, I find no record of pancreatitis as a cause of death in the mortuary statistics of Alabama.

Occurrence—Acute pancreatitis usually occurs in adults between 20 and 50 years, but may occur at any age. Two-thirds of the cases are in males, generally stout.

Etiology—There are two chief factors in the causation of pancreatitis; 1, the corrosive action of the trypsin of pancreatic juice, and, 2, infection.

Polya has shown experimentally on dogs that trypsin, the proteolytic enzyme of pancreatic juice, as well as the pancreatic secretion itself, when injected into the pancreas produces hemorrhage, necrosis, fat necrosis and death. Although the pancreatic juice is capable of producing these marked and rapid changes in the pancreas, it must first be set free from its normal channel. As to how this is accomplished has

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been doubtful, except in rare cases of trauma. Deaver asserts that "pancreatitis is due to micro-organismal invasion in practically every instance," and it is to this infection that the liberation of pancreatic juice is due. He gives the following modes of access:

1. Systemic circulation—rare.
2. Contiguity—not rare, occurring in perforation of stomach, duodenum and gall and bladder.
3. Ascending pancreatic ducts from duodenum or biliary tract, shown by Opie and Flexner as possible, and often occurs; but as many cases are not associated with diseases of biliary tract and cholelithiasis is more frequent in women than men, while pancreatitis is more frequent in men, this is not as important as previously believed.
4. Infection by lymphatics, chiefly from stomach, duodenum, gall bladder and appendix as original foci. The lesions of stomach and duodenum are often slight and unrecognized. The intimate connection between lymphatics of gall bladder, pyloric region and pancreas makes this very plausible. (Franks & Bartel.)

The primary causes of infection of the pancreas are:

1. Gallstones in half the cases—by blocking the papilla of Vater and causing bile to be forced into pancreatic duct, or by lymphatic infection from attendant cholecystitis.
2. Gastro-duodenitis in one-third of the cases.
3. Mumps
4. Pregnancy
5. Trauma

in small number.

Alcohol seems to be a predisposing cause.

Pathology.

When pancreatic juice is set free in the substance of the pancreas it exerts a rapid, corrosive action with production of hemorrhage. This may be profuse, accompanied by very little infection, and called pancreatic apoplexy. The hemorrhage may be wholly within the gland, or in the surrounding tissues as well. The hemorrhage, unless very slight, is followed by necrosis of the pancreas. As infection is nearly always present, suppuration occurs, in some cases with abscess formation, if the patient lives long enough. These may be multiple or large, involving the greater portion of gland, the head of the organ being usually first affected. Sometimes sloughing of the entire pancreas with formation of abscess in the lesser sac of the peritoneum occurs. An interesting and characteristic lesion in this disease is fat necrosis. The fat is studded with yellowish white or sulphur-yellow specks. These may be in the fat near the pancreas, or at a distance from it. Langerhans showed in 1820 that this was due to the splitting off of fat into fatty acid and glycerine by the pancreatic juice. The glycerin is absorbed and calcium salts deposited with proliferation of connective tissue around it. The healed lesions have been observed rather frequently by abdominal surgeons when no lesion of pancreas is known to exist (Richardson). There is usually considerable reddish exudate in the peritoneal cavity in early stages and even free blood may be present, with peritonitis and adhesions in later stages. The pancreas is swollen and firm and on section shows dark, reddish-brown areas of hemorrhage. These areas become necrotic, containing grayish granular material and pieces of pancreas, or abscesses may be found of various sizes, more or less encapsulated, according to the stage of the disease.

Symptomatology.

Some authors have divided pancreatitis into hemorrhagic, gangrenous and suppurative, but as Korte remarks, we can do no more from a clinical standpoint than say "acute pancreatitis." The onset is sometimes preceded by a feeling of uneasiness in the epigastrium, or indigestion, but as a rule a person who is feeling well is taken with a sudden, violent, colicy pain in the epigastrium, followed very soon by vomiting of greenish material or food and collapse, with rapid, thready pulse. The pain, which is probably due to stretching the parietal peritoneum and interference with coeliac plexus, persists and is intense, and is usually localized to mid-epigastrium. Some temperature may be present from the onset. The temperature is very variable, and not characteristic. Prostration is usually extreme, and delirium sometimes occurs, much more frequently than in other abdominal conditions. Constipation is usually present. Hiccough and belching are frequent. The patient is usually in a state of collapse, or extremely prostrated, sometimes jaundiced, with rapid thoracic breathing and weak rapid thready pulse. Pulse is important, and is sometimes the only index in early cases (Moyinhan). The abdomen is usually distended, chiefly in the epigastrium, tense, but as a rule not rigid. It may be tender all over, but chiefly in mid-epigastrium, or slightly to the right. These symptoms and signs continue, and death ensues from collapse in from two to four days, or the symptoms may be slight and recovery take place. On the other hand, the pain may become intermittent, the bowels move after several days, and the process goes on to abscess formation. Resistance,

or even a mass, is felt in the epigastrium, usually in the midline, over which there is dullness or dull tympany. The clinical picture is one of sepsis, due to abscess and suppuration. The abscess may point in the flank, usually the left, with a bulging and tenderness present. Cases have been reported where the abscess bursts into the colon or other viscus, and pieces of necrotic pancreas were discharged through the rectum.

Diagnosis.

It will be seen from this description that an accurate diagnosis is rarely possible. At the outset perforating gastric or duodenal ulcer, and later acute intestinal obstruction is simulated, while cholecystitis, appendicitis, ruptured ectopic pregnancy or tumor with torsion may be thought of.

In perforation by an ulcer previous symptoms are more common, with rigidity of the recti instead of the distended but not rigid abdomen of pancreatitis.

In acute obstruction collapse is not so frequent, and the pain not so localized. These cases are seen so rarely that familiarity with the clinical picture is not obtainable, so that as a rule the only thing we can determine is the indication for operation, as Maurice Richardson has said, in a very pessimistic article on the subject: "The indications for treatment will be fulfilled when the indications for exploration for all acute and grave abdominal symptoms have been fulfilled, and that's when immediate exploration is resorted to."

So that we should never feel satisfied in the presence of violent symptoms referable to the epigastrium in saying acute indigestion, colic or other vague diagnosis; but such diseases as acute pancreatitis should always be held in mind and the resort to exploratory operation not delayed too long. The treatment then is surgical.

Treatment.

According to Ochsuer and others, operation is not necessary in some mild cases and some do undoubtedly recover without operation. But as a rule, an operation is necessary. Most surgeons now agree that the operation should be done as early as possible.

Two indications are to be met by operation: 1, removal of exudate, and, 2, removal of primary focus of infection.

A median incision above umbilicus is usually preferred. The exudate is sponged out and drainage instituted through the gastrocolic or gastrohepatic omentum. In case of much swelling of pancreas or areas of softening, incision should be made into pancreas itself and drained. For such drainage rolled rubber dam is excellent, or an ordinary cigarette drain or tube may be used.

In a late article Daver had laid great stress on the importance of removal or drainage of the primary focus of infection, which, of course, is necessary, if we consider pancreatitis as a secondary infection in most cases. In very acute cases it is essential to make the operation as short as possible, so that in the presence of cholecystostomy the stones are removed and gall bladder drained by cholecystostomy as quickly as possible. In later cases where suppuration has taken place and abscess formation in left flank an incision below the lower pole of the left kidney may be necessary to furnish proper drainage. In some cases recovery takes place with drainage of moderate amount of brownish exudate, while in others a greater part of the pancreas may slough away and be discharged.

Prognosis.

Although Korte has shown from the work of Villor, Dressmore, Robson and himself that the mortality with operation is 60 per cent, still he has shown that the number of deaths increase with the duration of the disease. So that we may safely expect the percentage of mortality to be lowered by early recognition of the disease or by more frequent and earlier resort to exploratory laparotomy in the presence of acute diseases of the upper abdomen.

The following two cases, which I saw, on Dr. Gibson's service, St. Luke's Hospital, New York, are cited chiefly to emphasize the rapid progress of some cases:

A. L., 41 years, male. Previous history: Thirty hours before admission was taken with severe pain in the epigastrium. This soon subsided but recommenced after one hour, with vomiting of much greenish material. The pain became generalized over the abdomen and is so on admission. Bowels have not moved since outset, no urinary or respiratory symptoms. Feels very sick and weak.

Previous History: Had digestive disturbances with occasional vomiting; never any blood in vomitus, but has not been troubled with stomach for some time.

Physical Examination: Stout man, appearing very ill and in great pain. No jaundice or eruptions. Breathing almost wholly thoracic. Abdomen greatly distended and tender all over, especially in the upper quadrant. No masses or rigidity, no free fluid. T. 103. R. 36. P. 132.

W. B. C. 25,000 P. Cammidge. Reaction positive.

Operation: Right rectus incision. Numerous patches of fat necroses in peritoneum and in fat around pancreas. Gall bladder incised and numerous large stones removed; tubes inserted and held in place by purse-string suture of chromic gut; abdomen closed in layers. Collapse continued and died ten hours after operation.

Autopsy.

Chest and neck deeply jaundiced. Peritoneum of pancreas and tranverse colon almost covered with small areas of fat necrosis. Liver enlarged and fatty—2,880 grams. Stomach and intestines normal. Pancreas swollen and hard, especially at duodenal end, which forms a dense rounded tumor. Left half appears normal though increased in consistency. Head varies from reddish brown to a deep red on section. Deep red patches seem to consist of blood clot. Hemorrhagic area extends 5 to 6 inches from duodenum. Most of head replaced by sac 7x4x3 C. C. containing soft, pasty, yellowish necrotic material, which microscopically contains fatty acid crystals, but no cholesterin. There are other smaller sacs of similar nature. Papilla of Vater and duct of Wirsung free, but lining of latter deep red for a distance of 5 C. M. Lymph nodes swollen, red and soft. Few hemorrhage areas in omentum. It is seen from this that besides the acute attack he had evidently suffered from previous attacks which caused the abscesses.

F. F., 41 years, male. Patient was so ill when seen he could give very little history. Twenty-four hours before he was taken with severe sudden pain in epigastrium, followed by collapse. He had vomited frequently. Both pain and collapse has continued. Previous history uncertain, except that he drank rather to excess. The man was very large and fleshy, appearing very ill and in considerable pain. No jaundice. The abdomen was very much distended and tympanitic and tender in upper part. No rigidity of muscles, no free fluid demonstrated. Heart, lungs and extremities normal. Temperature 103, pulse 120, and very weak. Respiration 30 and W. B. C. 15,500. P. 87. The diagnosis was uncertain, and patient was so weak that operation not attempted. The pulse became weaker, patient soon moribund and temperature rose to 105.4, and he died after ten hours, despite stimulation.

Autopsy.

Peritoneum contained 200 C. C. of brownish fluid. Transverse colon adherent to small intestine by a few easily broken adhesions. Posterior surface of stomach covered by fibrous exudate, the meshes of which are filled with large amount of bloody fluid, which unite it to transverse colon and pancreas. Fatty tissue about pancreas, transverse colon, spleen and upper portion of descending colon is filled with large amount of red edema fluid. No fat necrosis. Pancreas: Surrounding tissue filled with large amount of red fluid. On surface and throughout organ are scattered small dark red hemorrhagic areas from 1-8 M. M. in diameter.

The remainder of the tissue is of gelatinous appearance, spotted and streaked with almost pure white areas.

Microscopically these areas show altered pancreatic tissue surrounded by granular structureless material. A few normal tubules are seen, but for the most part the cells are destroyed, with poorly stained nuclei. Similar areas of necrosis are seen in the surrounding fat.

Liver very large, light yellow in color and greasy on section.

Gall bladder and ducts normal.

Stomach and intestines normal.

A CONSIDERATION OF MISSED ABORTION AND MISSED LABOR, WITH REPORT OF CASES OF MISSED ABORTION.

By Dr. Milton A. Shlenker,
New Orleans, La.

In my opinion this important condition has not been given the deserved consideration by our American authors of text-books on obstretrics and gynecology. In fact the subject is dismissed with a brief mention of its occurrence and without any differentiation, or its pathology.

I am sure that these conditions occur much more frequently than reported, but little or no attention is given to the subject, either from a lack of appreciation of its importance, or it is considered by the average practitioner not sufficiently important to report.

Not infrequently these terms "missed abortion" and "missed labor" are used synonymously, but incorrectly so, as I shall try to make clear later.

The term "missed labor" was first suggested by Oldham in his Guy's Hospital Report in 1847 in which he referred to those conditions in which women who were pregnant for a full term and in which there was an occurrence of labor pains with a temporary or permanent cessation of the expulsive forces with the retention of the full term foetus beyond the term of its vital existence.

While the term "missed abortion" was applied some time later by Mathew Duncan to those cases in which there was a retention of an ovum which had died within the uterine cavity before it had reached the period of foetal activity, probably from the third to the fifth month of gestation. Though Oliver (New York Medical Journal, 1904), commenting on this appellation, says "that this term is inappropriately designated, for while the abortion is undoubtedly missed in the sense that the event does not follow so closely upon the death of the embryo as is naturally expected, it will assuredly take place. Consequently the event is not missed, but merely unduly delayed," which to a certain degree is correct, though frequently these products of conception are retained until removed by operative measures; but to my mind the abortion has in reality been missed and only the expulsion of the uterine contents is delayed. The term "abortion" is applied to those cases in which there is a death and expulsion of the foetus occurring within the first three months of gestation.

Williams defines "missed labor" as a rare condition in which the dead foetus is retained within the uterine cavity for an indefinite period after its death. He mentions an instance where the foetus was retained twenty-eight years.

So far seventy cases have been collected by Graefe; eleven of these were seen by him, and the rest were recorded in the literature (Williams' Obstetrics). Though E. Fraenkel reports having found in the literature up till 1903 one hundred and five cases (Winckel's Obs.).

This condition may exist for months or years without producing symptoms so long as the membranes remain intact, and no air is allowed to enter the uterine cavity. During this delayed period the products of conception undergo important changes consequent upon the cessation of its vitality. Oliver says in reference to retained intrauterine products of conception: "The tolerance is due to some peculiar state of the viscus whereby its irritability is greatly impaired, or even annulled." He also remarks, "It is extremely probable that this, as well as the anomalous behavior of the uterus generally, is dominated by some obscure influence."

This condition can, or may, occur at any time during the child-bearing period, and occurs with equal frequency with the primipara and the multipara.

As to the real causation of the death of the foetus I have been unable to find any one distinct feature producing this condition, though E. Fraenkel (Winckel's Obs.) is inclined to believe that the cause of the death of the foetus is due to an increasing disturbance of the circulation, with a defective elimination of some unknown toxic products of metabolism, which seems a most plausible explanation. De Lee (Year Book, Vol. 5, 1908) says: "Numerous theories have been advanced by many writers that appear plausible in individual cases, but inadequate when applied to a large number."

This condition was frequently taken for, or confounded with, extra-uterine pregnancy, but through the admirable works of Scharlieb, Kleinertz, Loebhart and Haggerman it was proven otherwise (Winckel's Obs.). Lactation seems to have a pronounced influence on this condition, for it occurs when conception takes place where the glandular activity has been maintained. It happens frequently shortly after marriage, where it appears to be dependent upon some supervascular condition of the endometrium, for in such cases the menstrual fluid is not only increased in quantity but recurs too frequently (Oliver, New York Medical Journal).

I presume that those factors which predispose to abortion are to be considered the etiologic factors in the production of this condition. I will enumerate below a few of the well-known cases:

Maternal causes: Tuberculosis, syphilis, shock, acute infectious diseases, chronic diseases of the heart, liver, lungs and kidneys. These destroy the foetus by producing a passive congestion of the placenta. Fright, anxiety and other emotional excitements, violent coitus, blows, falls, contusions, jarring of railroad travel, misstep, lifting heavy weights, rapid stair climbing, sea bathing. Hot sitz and foot baths also tend to produce abortion by dilating the pelvic blood vessels, in this way causing an excess of blood to be sent to the uterus. An excess of CO^2, chronic lead poisoning, violent vomiting and coughing and excessive physical exertion.

Paternal causes: Syphilis, tuberculosis, nephritis, debauchery, feeblesness, extreme youth and old age.

Local causes: Subinvolution, acute and chronic diseases of the uterus and its appendages, laceration, displacements, degeneration, adhesion of the uterus to the adjacent organs, tumors of the uterus and in its vicinity. Tight lacing and contracted pelvis occasionally cause the death of the foetus by interfering with the developmental changes of the uterus. Surgical operations also predispose to abortions.

Foetal causes: Syphilitic diseases of the mem-

branes of the placenta. Cystic degeneration of the chorionic villi, placental apoplexy, placenta previa, too short a cord, knotting of the cord, entrance of air into the uterine sinuses.

If air enters the uterine cavity putrefactive changes occur and produce a condition of physometria. If no air enters mummification takes place or the foetus may become macerated, though not necessarily putrid, and there may be a prolonged discharge from the cervix.

Missed Labor.—In cases of missed labor, labor does not come on at all, or having begun the pain ceases and the foetus is retained. A complete evacuation of all the foetal structures is rarely effected by nature alone, some of the parts being always retained.

The symptoms are very indefinite in character and somewhat obscure. The patient considers herself seven or eight months pregnant, though at times she becomes uneasy owing to the absence of the foetal movement, or life, and failure of the abdomen to enlarge. Something unusual is suspected and upon examination the uterus is found to correspond in size to a four or five months' pregnancy. The reduction of the size of the uterus is due to the amniotic fluid being absorbed and general shrinking of the tissues. The abdomen becomes smaller and milk appears in the breasts.

The patient usually suffers from nausea, foul breath, loss of appetite, loss of weight, chilly sensations, often followed by an elevation of temperature, headache and general lassitude. There may be some bloody vaginal discharge and the cervical temperature is higher than the vaginal.

The child in utero becomes enveloped in the placenta and its membranes, or it becomes macerated, mummified, calcified or putrified. When this condition persists it seriously impairs the health and endangers the life of the patient. Putrefactive changes are especially serious because of the septic condition which it may produce. The osseous portion of the foetus may penetrate the uterine wall and find its way into the neighboring viscera, and even through the abdominal wall, producing peritonitis, septicaemia and not infrequently death.

Missed Abortion.—The patient who has usually menstruated regularly skips two or three periods and has the characteristic symptoms of pregnancy. Then, most frequently between the third and fourth month, there occurs a bloody or mucobloody discharge accompanied by pain simulating those of labor, without an expulsion of the uterine contents. With the onset of the bleeding the death of the foetus occurs. This bleeding is usually due to a loosening of the placenta, but as a rule the ovum is retained within the uterine cavity.

In missed abortion an immediate diagnosis should not be made, but the patient should be kept under observation a sufficient length of time in order that one can come to a positive conclusion, and when that is reached a complete evacuation of the uterine contents is advised.

Edgar, speaking of prolonged pregnancy, says that no pregnancy should be allowed to continue more than two weeks beyond the normal period of gestation without a thorough examination for the cause, with the aid of an anaesthetic if necessary, and on determining everything to be normal with a presumably dead foetus, labor should be induced at once. The prognosis is always favorable in these cases and after a positive diagnosis is made of missed labor, that we should not further delay the induction of labor. I have had the good fortune to observe a number of cases of missed abortion and herewith submit a few interesting histories, with some unusual complications.

Mrs. N., aged 29. Family history: Mother and father living and well. Two brothers and one sister, all in perfect health. Previous history: Had a scoliosis in early childhood, and the diseases of infancy. She is a sufferer from chronic bronchitis and has a tendency to obesity and anaemia. Menstruation began at twelve years of age and has been fairly regular, and is of four days' duration. It is painful only on the first day, when she suffers from pain in the head and back. The quantity is normal.

She is married and has two children, the youngest of which is three and a half years old, and the eldest six years of age. During her first pregnancy, in the seventh month she noticed that her legs were very much swollen, and a week before the birth of the child she experienced flashes of light before her eyes, and severe headaches (uremic manifestations).

Incidentally, another aggravating condition manifested itself in the shape of ingrowing toe nails, which, owing to an inability to secure a healthy union of the parts were operated on several times. This condition persisted after delivery and she consulted Dr. Osler, who found evidence of a nephritis. Under treatment the toe and general condition improved. The patient informed me that her urine was never examined by her physician during her entire pregnancy, and consequently cannot give any information regarding her urine, but must conclude that she suffered

from albuminuria, which produced uraemic symptoms. Her pueperium was uneventful.

After her child was eighteen months old, on the recommendation of her physician, she visited Hot Springs, Ark., and spent eight weeks there taking the treatment, and her general health improved.

At this time she was pregnant again, and in the second month. She passed through an uneventful period and at full term was delivered of a fine, healthy child.

In February, 1906, she had an induced abortion, being pregnant in her third month. She had an uneventful recovery.

Her menstrual cycle had resumed its normal course until October, 1906. She continued in excellent health until May of this year, when her urine showed the presence of albumin, which up to this time was negative, monthly examinations being regularly made. On May 11th albumin first appeared in the urine. Spec. grav. 1008, acid reaction, no sugar, albumin in abundance, quantity of urine in twenty-four hours 124 ounces. From this time on the quantity diminished, going as low as thirty-three ounces in twenty-four hours.

There was a marked edema of the lower extremities, which was so marked that the patient was unable to wear her usual garments. She complained of severe headaches, dizziness, flashes of light before her eyes, etc. I immediately confined her to bed and ordered a skimmed milk diet, hot air baths, daily saline purge, and a cream of tartar lemonade.

Her uraemic symptoms began to disappear, as well as the edema of the lower extremity. Her urine, which after the first day had been quite large in amount, diminished in quantity, but on this plan of treatment showed marked improvement. The patient felt no great inconvenience whatever until about ten days later, when she experienced a condition of which there is but little mention in the text-books.

On the 20th of May I was hurriedly sent for by the patient for a bleeding of the gums, which at first was very slight (lateral incisors). I must mention that the condition of the gums was very poor, and showed some recession and marked deposits. I made an application of a 10 per cent solution of nitrate of silver, which temporarily arrested the bleeding, though oozing continued throughout the night. The following day the bleeding became pronounced, and almost alarming, for the blood was almost spurting. The pulsation of the small vessels was easily visible. Adrenalin, perchloride of iron, and majority of other hemostatics were applied with little or no effect. Whenever a clot formed the bleeding became arrested, but as soon as the clot was displaced the bleeding started again, and was then only partially controlled by pressure. I had to summon the assistance of a dentist, who succeeded in arresting the hemorrhage by removing the tartar and granulation and reaching a healthy base.

On the fifth day, after her cabinet bath, the patient was taken with fever and a bronchitis developed. The urine diminished in quantity and she had a recurrence of uraemic symptoms with an increased amount of albumin in the urine, which passed off in a couple of days. The foetal sounds were watched constantly and were readily found and audible.

With a dimunition of albumin the diet was increased, allowing cereals, toasted bread and butter, and buttermilk. Blaud's pills were given for the anaemia. Under this treatment she progressed nicely, but complained that the foetal movements were less pronounced, and on the 5th of June I discovered that the foetal heart was not to be heard, which theretofore had been distinct, but had gradually grown less pronounced. After consultation it was agreed that the foetus was dead and should be removed. On the 10th of June labor was induced, 5 p. m. to 10 p. m., and on the morning of the 11th she was delivered of a male foetus (dead) which showed evidence of having been dead for some days, as the abdomen was black and badly macerated.

Her puerperium was uneventful. She was kept in bed for about four weeks, continuing her cabinet baths and diet. Her urine, which showed quite an improvement, still had traces of albumen, which persisted up to the 10th of October, though she continued on her diet. The patient is now in splendid condition and has resumed her normal menstrual function.

Missed Abortion.

Mrs. L. M., age 30. One child, age five years, one miscarriage. General halth has always been good. Menstrual history negative; last menses in November. She had the usual discomforts of early pregnancy, such as nausea, vomiting, etc., After the third month these symptoms abated. Her abdomen began to enlarge and signs of pregnancy to manifest themselves. Everything progressed nicely until the 15th of July, when she was moving from one house to another one of the servants had an epileptic fit, which seemed to completely upset her. From this period on she began to complain of a general discomfort and

nervous symptoms. Her abdomen failed to enlarge, in fact she thought that it was growing smaller, and the foetal movements were less pronounced. Considering herself all right I was not permitted to examine her vaginally until October, when to my surprise I found that the size of her uterus corresponded to a four months' pregnancy instead of full term.

I explained the condition to her husband, expressing my opinion that there was a dead foetus in the uterus, and advised its removal. Upon my suggestion a colleague was called in consultation and he concurred in my diagnosis and an operation advised. This was on October 6th. I at first used bougies introduced in the uterine cavity and packed cervix with iodoform gauze to induce labor, which progressed very slowly. After twenty-four hours a foot presented, after which there was a total abatement of uterine contractions. The progress of the delivery being slow, I then etherized the patient and removed the foetus by dilating the cervix instrumentally and drawing down the feet and then extracting the trunk and head. The body of the foetus was much macerated and had the appearance of having been dead about three months. Missed abortion.

Patient No. 72, Touro Infirmary Clinic; colored, age 20. Applied to the clinic on May 14, 1907, for treatment. She is married five years and has had two children, the youngest being eighteen months old and is not nursing. No abortions, though she admits having syphilyis.

Her menses began at fourteen and has always been irregular. She suffers pain during the period, which is of four days' duration. Her last menstruation was on the 16th of January, 1907, and she has not "seen anything" since then up to a week or so ago, when she began having a bloody discharge every night, bearing-down pains and a profuse yellowish discharge during the day.

Examination: Uterus enlarged, corresponding to the fourth month of pregnancy. Uterus doughy, soft: all signs of pregnancy arrested.

Diagnosis: Missed abortion.

May 21.—On Friday last she says she passed a large piece of flesh, and is still having some discharge. On examination I found the cord and one leg of the foetus protruding from the cervical canal into the vagina. I advised her to go to the hospital, which she refused to do. She returned to her home, but I informed her of the necessity of removing the uterine contents, and she agreed to allow me to come to her home and perform the operation. Accompanied by two assistants, I reached her home, which was the typical negro shanty, consisting of two rooms and a kitchen. It was very filthy, not even having available water. She sent for one of her friends to bring some water and heat same for us. I had the helper to clean up the kitchen table and we placed the patient on it. After thoroughly disinfecting the vulva I dilated the cervix with my finger and removed the placenta, which seemed to have been adherent. The foetus, which corresponded to a four months child, was passed just prior to our arrival, and showed signs of maceration. After removing the uterine contents with my finger I packed the organ with iodoform gauze and ordered ergot by mouth every three hours during the day. Her recovery was uneventful, not having the least bit of temperature. I used no anaesthetic whatever. I was later informed that the patient was an epilectic.

Case No. 265, Touro Infirmary Clinic. J. D., colored, age 27. This patient presented herself to the clinic on the 9th of October. She is married now eight years and has seven children, the youngest being nine months old. She has had four abortions. Her menses began at the age of fourteen, and is usually normal, and of three days' duration. She menstruated last in March. She presents herself to inquire whether or not she is pregnant.

On examination I found her breasts enlarged. The uterus (the fundus) reaching midway between the symphisis and the umbilicus, and of a doughy consistence. She also complained of a bad discharge. On the right labia was a large condyloma.

Diagnosis: Missed abortion.

On several occasion I have made an effort to find this woman in order that I might note her condition, but have never been able to get her to return to the clinic.

ETIOLOGY AND PATHOLOGY OF NEOPLASMS OF THE BREAST.

By Jesse J. Cullings, M.D.,
Memphis, Tenn.

The etiology of tumors of the breast is included in that of tumors in general. The oldest theory of the cause of tumors, and one that has a large following today, is Conheim's theory of embryonic residues. The substance of this theory is that during early development some embryonic

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cells or foetal structures become caught in other tissues and here remain dormant, retaining, in a latent form, their embryonic power of unlimited proliferation. These cells are capable later, under a suitable stimulus, of active multiplication, and thus give origin to a tumor.

Virchow, in his "Heterology" hypothesis, similarly suggested that a portion of one tissue might become entangled in another during development or as a result of injury or disease.

The "Tissue-Tention" hypothesis of Ribbert is that the proliferating power of the component cells of any tissue is regulated by what he terms the "tissue-tention" of the part. During health, according to Ribbert's hypothesis, an equilibrium exists among the various tissue elements, whereby any overgrowth on the part of one tissue or set of cells is held in check by the restraining influence of the adjacent tissue or tissue elements. Consequently any pathological disturbance of the existing equilibrium might lessen or remove the normal restraining influence of the less resistant tissue element, and thus allow not only overgrowth, but invasion of the weaker by the stronger, who are now free to proliferate. The dislocation of a cell or cells during development or as a result of injury or irritation, may lead to their isolation and to their being freed from the restraining influence of their fellows. Thus epithelial cells, when isolated and freed from the inhibitory influence of the neighboring epithelial and connective tissue, being endowed with a latent capacity for unlimited proliferation, may multiply and give rise to a new growth.

Hansemann's theory of "anaplasia" in tumor cells is based upon the proposition that all cells possess two classes of activities. First, the faculty of multiplication; second, the faculty of individual growth and development of specialized function, with specialized structural peculiarities to correspond.

The first is found most active in the tissues of the embryo, while as age advances the second becomes the most dominant characteristic. Now, if for any reason the reproductive activity (embryonic character) should become re-established, the condition may be regarded as a reversion to a more primitive type of cell; and it is to this reversion, that apparently takes place in the formation of neoplasms, that Hansemann has applied the term "anaplasia." The greater the degree of anaplasia the more primitive the type of cell and the more malignant is the neoplasm. The less marked the anaplasia the more benign the tumor.

Parasites have been brought forward, at various times, and lauded as the cause of tumors, but none, as yet, have withstood careful investigation. The most of the supposed parasites have been shown to be either cell inclusions or degenerations.

The predisposing causes of tumors of the breast may be considered under the three headings: Age, functional activity, and injury.

Age.—We most frequently find neoplasms of the breast between the ages of 35 and 55 years. They are also more frequent in women who have borne children than in those who are sterile.

Functional Activity.—The mammary gland not only occupies a position of anatomical unrest, but like the uterus is subjected to periods of prolonged physiological unrest during pregnancy and lactation, and, like the former, must, therefore, suffer the accompanying predisposition to new growths.

Injuries.—The surgeon is often struck with the frequency in which he gets a history of previous injury in mammary tumors. In 15 to 40 per cent of the cases applying to the surgeon for operation a well defined history of previous injury may be elicited. How this injury acts in its predisposition to tumor formation is unknown. It may be that by the injury some of the tissue elements are displaced from their normal surroundings and thus being freed from the inhibitory influence of its neighbors—"tissue-tention" of Ribbert—is free to proliferate unchecked, or the injury may simply act as a stimulus to a mass of embryonic cells that have been slumbering for years, awaiting suitable encouragement to multiply—Conheim's Embryonic Inclusions. Again it may be that the injury only served to call forcible attention to the breast, and upon careful examination the tumor which has existed for some time is found.

As the breast is composed mainly of three varieties of tissue, viz., epithelial (integument), glandular and connective tissue, we may expect to find tumors composed of any one, or any modification or any combination of these tissues.

Tumors of the mammary gland may be classified histologically into epithelial tumors, glandular tumors, connective tissue tumors and mixed tumors. They may also be considered clinically under the old classification of malignant and benign. Malignant tumors are those that exhibit the following five characteristics:

1. Tendency to recur after apparent complete removal.

2. Tendency to be diffuse and to possess no capsule.

3. Tendency to infiltrate the adjacent tissues.
4. Tendency to spread by metastasis through the lymph or blood vessels.
5. Tendency to produce that constitutional condition known as cachexia.

Benign tumors do not possess the above five characteristics as a whole; although we do occasionally find a benign tumor possessing the first two, viz., tendency to recur after apparently complete removal, and to be diffuse and possess no capsule. Metastasis of a benign tumor has also been reported—an adenoma—but such a tumor should be considered very critically and at great length before placing it among the benign tumors, as metastasis is one of the strongest proofs of malignancy.

The most important epithelial tumors of the breast are the carcinomata. Carcinoma of the breast is the most important of all tumors, not only because it constitutes the majority of breast tumors (75 per cent) (Williams has estimated that 40 per cent of all carcinomata affecting the human race arise in the mammary gland), but because of their great malignancy. These tumors are most frequent at the age of the menopause.

The superficial form of carcinoma, squamous epithelioma (better known as Paget's disease of the nipple) is a rare form that first appears in the nipple and gradually infiltrates the deeper tissues.

The deeper forms of carcinoma arise from the epithelium of the acini of the gland. These tumors are divided into three varieties based upon the relative amount of epithelial and fibrous tissue present. The three varieties are the scirrhus, the simplex and the medullary.

The scirrhus carcinoma is composed of rows of small elongated collections of quite small epithelial cells which seem to be compressed by the surrounding fibrous connective tissue, of which there is relatively a large quantity. These epithelial cells appear to irritate the surrounding connective tissue and this produces an overgrowth of fibrous tissue which holds them in check. The scirrhus is the least malignant of the three types.

In the carcinoma simplex the epithelial cells are larger and are collected into greater groups and the connective tissue does not show such an abundant overgrowth. This tumor while more malignant than the scirrhus, is not so malignant as the medullary.

The medulary type is composed largely of cells, the connective tissue of this tumor playing a minor part. It is the most malignant of the three, giving rise to early metastasis. It is well here to call attention to the fact that while most of the lymph from the mammary gland drains into the lymph nodes of the axilla of the same side, some is drained into the subclavian nodes on the same side, some into the mediastinal nodes and a small amount into the lymph nodes of the opposite axilla. A metastasizing carcinoma may give rise to secondary growths in any of these localities.

The glandular tumors, adenomata, are of the rarest of breast tumors. According to Creighton they arise, not from the acini of the mammary gland, as is usually taught, but from the sudoriparous glands which are found extending deep down in many normal breasts. There are two varieties of adenomata of the breast, depending upon whether the new growth consists of acini or of ducts. In the first case the tumor is called an "adanoma acinosum" (consisting of new formed acini); in the second case the growth is known as an "adenoma tubulare" (consisting of newformed ducts). These adenomatous growths consist of an erratic growth of glandular tissue which differs from a simple hypertrophy of the gland, in the new glandular tissue, being composed of several layers of cells, and in some places there are no lamina, but simply a mass of epithelial cells. There is also no orderly arrangement into lobules as there is in normal mammary gland. But, despite the above facts, the basement membrane, with its surrounding single layer of non-striped muscle tissue, is always present as in normal.

The most important connective tissue neoplasms of the mammary gland are fibromata, myxomata and sarcomata. All connective tissue tumors of the breast, according to Dreyfuss and Billroth, start from the connective tissue surrounding the acini of the gland.

Fibromata are very rare in the mammary gland; the tissue itself is similar to that of a fibroid in any part of the body, but because of the presence of the glandular tissue and the relative distribution of the fibrous tissue of the tumor, fibroid tumors of the breast are separated into two classes, viz., pericanalicular fibromata and intracanalicular fibromata. In the pericanalicular type the fibrous tissue is arranged concentrically around the ducts and acini of the gland. In some cases the ducts are constricted at various points by the contraction of the fibrous tissue and this leads to dilatation or cystic formation; in this case the tumor becomes known as a "fibroma cysticum."

In the intracanalicular form the fibrous tissue attempts to grow into the lumina of the ducts and acini, pushing the wall before it and thus making finger-like processes composed of fibrous tissue and covered with a single layer of glandular epithelium. When the ducts and acini are dilated-cystic, and these finger like processes extend into the cavity thus formed, we have what is known as an "intracystic papilloma" of the breast.

Myxomata of the breast are rare without an admixture of glandular elements. They are small tumors composed of mucoid tissue; while rare as a pure tumor, myxomatous degeneration of fibromata and sarcomata are not uncommon. Fibromata and myxomata are benign tumors.

Sarcomata are one of the most malignant affections to which the breast is subject; but fortunately they are rare, constituting two-thirds per cent of the tumors of the breast. They are more frequent in young women than are carcinomata, and are rarely found after the menopause. The spindle cell is the most frequent. They are rapid in growth and metastasize by way of the blood; usually to the lungs.

The mixed tumors are adenocarcinomata, adenofibromata, fibroadenomata, adenomyxomata and adenosarcomata.

In an adenocarcinoma we not only have an attempt to produce glandular tissue, but the epithelial lining of these glands show a tendency to break through the basement membrane and infiltrate the surrounding lymph and connective tissue spaces. This tumor is malignant and metastasises by way of the lymphatics.

In the adenofibromata we have a tumor consisting of a new growth of both glandular and fibrous tissue with a predominance of the latter. In the fibroadenomata we have the same as the adenofibromata except that in this case there is a predominance of the glandular elements. Adenomyxomata, while rare, are not so rare as pure myxomata. This tumor might also result from an adenifibroma by myxomatous degeneration (transformation) of the fibrous tissue.

Adenosarcomata are tumors consisting of not only a new growth of glandular tissue, but also a growth of embryonic connective tissue. This might easily originate from an adenofibroma by sarcomatous transformation of the fibrous tissue.

As at least 80 per cent of mammary neoplasms are malignant, no tumor removed from the breast should be discarded without first having a microscopic examination of sections from it, and a pathological diagnosis made. Nor should we be contented with this, but all lymph glands removed at the operation (palpable glands are always to be removed) should be sent to the laboratory; these, not for the sake of a diagnosis, but for the sake of a prognosis.

TUMORS OF THE BREAST—SYMPTOMS AND TREATMENT.*

By Wm. T. Black, M.D.,
Memphis, Tenn.
President Memphis and Shelby County Medical Society, 1912.

In dealing with neoplasms of the breast we are usually dealing with that most feared of all afflictions, cancer, for 86 per cent of neoplasms in this gland are malignant, about 80 per cent of them are carcinomata and 6 per cent sarcomata. The remaining per cent are benign in the beginning, but at least half of these latter become malignant, consequently over 90 per cent are finally malignant. If over 90 per cent of these growths are or become malignant and if cancer is on the increase, then ultimately we will in all probability have a much higher per cent than the per cent above given, consequently we should deal with all growths in the breast as malignant, unless proven to be benign by microscopical examination.

It has been stated that in 1900 there were five times as many deaths from cancer as in 1850, and in the United States alone during the former year there were 3,500 deaths from cancer of the breast alone. When we consider that one woman out of every eight past thirty-five years of age dies of cancer and that the breast is next in frequency to the uterus involved then we should be appalled at the large mortality due to this one gland. When we stop and remember that cancer in the beginning is a local and curable trouble then it is that we must agree that something is wrong with us as a profession. I do not mean that we are derelict in the diagnosis, advice, or the treatment given to our patients, but that we are not doing our duty (from a humanitarian viewpoint), to the laity by not in some way informing them of the danger of any lump in the breast or any discharge from the nipple.

The symptoms and differential diagnosis of enlargement in the mammary gland is not always easy clinically, and in some cases impossible without the aid of a microscope. We must, however,

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differentiate between benign and malignant growths histologically before we can treat them intelligently. Clinical diagnosis of benign tumors can fairly well be assumed by the following history and symptoms:

A woman under thirty-five years of age with an encapsulated, freely movable tumor, with no retraction of the nipple, nor discharge from the breast, with no absorption of the overlying fat, no glandular enlargement or metastasis to any other portion of the body can usually be put down as a benign tumor, especially if the tumors are multiple or bilateral. Cystic tumors, especially, nearly always appear for some unknown reason in both breasts at the same time. While multiple and bilateral tumors may be malignant, they are usually as above stated.

In carcinoma we have a growth usually appearing later in life with early glandular involvement. and, if the tumor has been benign, and commences to grow rapidly, then it begins to have malignant changes taking place.

According to Syme, one of the first symptoms to appear in cancer of the breast is an elevation of the nipple, which is followed later by a retraction of the nipple; the latter is due to the pulling on Cooper's ligaments. We have early fixation of the growth to the skin, which is entirely different from benignancy, for you never have fixation in benign tumors unless they become infected.

A carcinoma is often hard and nodular in the beginning and may be confused with a cystadenoma, the difference of course being a lack in the latter of other malignant symptoms. A sanguinolent discharge is very suggestive of malignancy. A simple discharge would rather favor benignancy. We may have a sanguinolent discharge with a cancer of the breast even in the absence of any enlargement.

The history of the patient, especially a hereditary history and a history of a previous inflammation of the breast (mastitis), is very significant. Murphy says, "A distinct trauma which the patient remembers having received several months prior is a predisposing cause of cancer of the breast." A distinct injury is probably not obtainable in carcinoma in any other portion of the body except the mammary gland. There is usually a history of a long standing irritation.

A clinical diagnosis for advanced cases of malignancy is usually very easy. When we have present metastasis to the glands, the bones (especially the upper end of the femur), mediastinum, lungs, pleura, spine, liver, etc., marked fixation to the chest, emaciation and sloughing of the tumor, then the diagnosis is easy.

In the early diagnosis of cancer we must exclude intra canaliculi myxomata, fibro-adenomata, cysts (simple and papillomata), cyst-adenomata, mixed tumors and other affections; for example, syphilis, tuberculosis, actinomycosis, eczema, galactocele, chronic cystic and interstitial mastitis.

Syphilis is a rare affection of the breast, but produces in the acute stage at times an acute mastitis, and in the chronic stage we may have a gumma and marked infiltration, which may be followed by atrophy and contracture of the part, or we may have appearing one or more lumps, which are sometimes hard to diagnose from benign and malignant growths. However, the history of the case with a Wasserman test will usually clear up the diagnosis.

Tuberculosis in the breast is usually secondary to tuberculosis in the glands, bone or lungs, but it may be primary from an abrasion or fissure on the breast. It may appear in nodules, or may be hard and contracted, and in some cases soft places denoting degeneration of the part. We often find present in the tubercular breast tubercular sinuses. When we find tuberculosis in some other part of the body with a confirmatory Von Pirquet or other tubercular tests, with the absence of other above enumerated symptoms, we will usually have no trouble in confirming the diagnosis.

The finding of the actinomyces clears up this rare affection.

Eczema is sometimes hard to differentiate from Paget's disease, but the latter is purely a carcinoma springing from the glandular epithelium of the milk ducts (Ribbert) and is readily diagnosed as such.

Paget's disease commences at the nipple and spreads concentrically over the breast and presents a parchment-like crust over the breasts, with early retraction of the nipple and fixation of the skin. Paget's disease is a very rare affection, coming on usually after the functionary period and is very rare in a virgin. In this connection I wish to quote a case which I saw with Dr. R. F. Mason about three years ago.

A young woman, eighteen years of age, a virgin, presented herself with typical Paget's disease of both breasts. This case was very closely studied by Dr. Mason and myself before we made a positive diagnosis, for the reason that we could not find at that time a similar case reported. The radical operation of both breasts was performed in this instance. The woman later became preg-

nant, and has remained well, so far as we have been able to learn, up to the present time.

In chronic mastitis, with a discharge from the nipple, we have one of the hardest affections of the breast to differentiate from a cancer, especially when appearing in a woman past forty years of age. As an example, showing how we may be mistaken in arriving at a positive diagnosis in enlargements in the breast, I wish to cite the following case:

Julia L., colored, age 28, married; came for examination for a lump in the breast, with a discharging nipple. About a year and a half ago, the following history was obtained:

A year and a half previous to her appearance she had given birth to a child, which was normal, but which was followed in a few days by an abscess of the right breast. The abscess was opened by a physician two or three times, the breast never healing entirely. At the time of her appearance at my office she had a large lump in her right breast, very hard and irregular in contour, very painful to pressure and a discharge from the nipple. She gave the history of having suffered a great deal of pain, of having had some temperature and a loss in weight previously. The discharge of the breast was examined by Dr. Jesse J. Cullings, who reported present blood corpuscles and pyogenic organisms.

In a few days the tumor was removed and a histological examination was made by Dr. Cullings, who reported it to be an adenoma-fibroma with a sarcomatous change in the center. This case is reported simply to show how we might probably overlook malignancy unless we have microscopical examinations made of all lumps removed from the breast.

We should in all instances have these examinations made, either by having a frozen section made at the time of the operation so as to know how radical an operation must be performed, and if impossible to have the examination made during the operation we should remove the supposedly benign growth and send it to a pathologist for an examination. I would only advise the excision of a portion of the tumor when we can have the examination immediately made, and when this is done the parts where the incisions are made should be thoroughly cauterized for fear it might be carcinomatous and we might have transplantation of cancer cells. If the growth has to be sent to the pathologist and we have to wait a few days for a report, then it is better to remove the entire encapsulated tumor.

The treatment of cancer of the breast should be divided into the prophylactic treatment (that is, removing all benign-looking growths) and the radical and palliative treatment.

The early radical treatment is the only treatment which so far has offered any hope for those who are already affected with malignancy, and the success of this treatment depends entirely upon the diagnosis before metastasis takes place, and then in a large number of instances the relief is only for a short time.

The scirrhus form of cancer is probably the most favorable variety for treatment, but in old and feeble people sometimes the best treatment is to leave it alone. The most unfavorable variety is the medullary variety occurring in the functionating breast. In the latter class of cases often the radical operation offers very little hope. A very few months ago I had occasion to operate upon a woman 26 years of age whose breast was lactating. In less than two months after its removal the other breast became involved and in less than two more months metastasis to the lung and pleura had taken place and the woman died in less than six months from the time of its first appearance.

This case shows how rapidly the young, robust woman, especially with lactating breast, may succumb to cancer.

Cancer differs from all other diseases of which I have any knowledge in the fact that it is more virulent in its effect in the young athletic person whose lymphatic circulation is not interfered with. While youth and vigor would ordinarily have a tendency for good, in this condition it has a tendency for bad.

Sarcoma is a rare condition of the breast, occurring only in from 3 to 6 per cent of neoplasms of this gland. This gland seems to possess rather an immunity from sarcoma, but when it does occur can usually have a history of trauma, or a previous benign tumor, which is undergoing a sarcomatous change. It follows the intra-canaliculi myxoma oftener than any other growths. The early removal of healthy breast tissue outside of its capsule in early cases offers good results, but when the glands are involved from a hyperplasia the tumor becomes enlarged and fixed, then more radical removal of the pectoral muscles and glands is attended with better results.

In performing the radical operation for carcinoma, I mean radical in every sense which conforms to the immediate mortality of the patient. Remove all skin over the gland, the lower portion of the pectoralis major and the minor and all axiliary glands, and if the supraclavicular glands are involved and the case offers, in your mind, hope of relief, remove them also. However,

when the supraclavicular glands are involved we have present the symptoms which lessen the chance of cure. I do not believe it is consistent with good surgery due to a large immediate mortality to dissect down to the umbilicus and up on the round ligaments as done by Henle, for we would only cut off 1-20 per cent of the danger from metastasis and increase our operative mortality.

Always preserve the respiratory nerve of Bell and the long thoracic, so as not to interfere with the serratus magnus and latissimus dorsi muscles.

I have found that the Jackson incision offers a more liberal removal of skin and a better adjustment of the skin afterwards than any other incision. Dissect your skin freely below and behind so that you can pull the skin forward and upward and fill in your axillary space. This procedure will prevent any scar tissue interfering with the circulation. Dress your wound with a wet saline gauze, so as to favor an immediate capillarity. Do not fix your arm as formerly done, but leave it free to move, immediate motion being very necessary to the future welfare and comfort of the patient. A woman should be able to comb her hair by the second week.

The palliative treatment is of course indicated in those cases which have gone too far for a radical operation.

I have had no experience with the chemic devitalization removal of cancer, but in the inoperable cases I believe it worthy of trial.

The serum, or vaccine, treatment has met with some success, but it has only been tried on the inoperable cases, and the complications in the nature of acute nephritis have been so large that we are not justified in its use until it is put upon a more rational and safe basis.

In conclusion, I wish to state that, in my judgment, one of the worst mistakes we can make as physicians is our failure to advise removal of all neoplasms of the breast early in their infancy, and not wait for symptoms other than an enlargement to appear, when it may be too late to save or prolong life.

TRAUMATIC RUPTURE OF THE KIDNEY. REPORT OF THREE CASES: TWO NEPHRECTOMIES.

By Frank K. Boland, M.D.,
Professor of Surgery, Atlanta Medical College,
Atlanta, Ga.

On account of the apparent rarity of this injury, a report of three cases in the experience of the writer during the past year, seems warranted. Two of the cases were subcutaneous rupture, while the third was due to a stab wound. The first two were in children, in whom the injury is particularly rare. C. L. Gibson, writing in the American Journal of the Medical Sciences, May, 1912, states that there are only 22 cases in children in tabulated statistics. Subcutaneous rupture in all classes of patients, however, is far commoner than rupture due to an open wound.

Case 1.—Eleven-year-old boy, who was thrown from a farm wagon and struck his right loin on a rock on the ground. He was stunned for a moment, then arose and plowed two furrows before he fell from weakness. There were no external signs of violence, but considerable pain and tenderness over the loin, and the attending physician at first though the twelfth rib was broken, and applied adhesive plaster. A few hours later, when the boy passed blood in his urine, and began to have temperature of 100 to 101, with a very weak pulse, he was brought to the hospital with the diagnosis of ruptured kidney. By this time he was passing considerable blood, and swelling was marked. There was no renal colic as has been reported in such cases from blood clots in the pelvis or ureter. Urination was not difficult or painful. Lumbar incision was made, and the fatty capsule was found full of blood clots, and the kidney torn almost in two at the junction of the lower and middle thirds, at right angles to the long axis, and deeply torn in the same direction at the junction of upper and middle thirds. The kidney substance was very friable, and as stitches did not hold well, a nephrectomy was done. As the ligatures on the renal vessels did not seem particularly secure, and the patient's condition was bad, a procedure was adopted which the writer has utilized on other occasions. A strong hysterectomy clamp was left on the pedicle, with the handle protruding through the wound, and removed in three days. A cigarette drain was left in for a few days. The patient made an uneventful recovery, and six months after the operation was reported to be in good health. The amount of urine secreted arose to normal soon after the operation. About ten ounces of normal saline was injected intravenously while the patient was on the table.

Case 2.—Elevator boy, 16 years old, who was caught between the floor of his car and the top of the door when the car was suddenly driven upward by an accident. His left thigh was dislocated into the obturator foramen, and his left leg broken in two places, one being a compound

fracture. The dislocation was reduced at once. He presented a picture of profound shock from hemorrhage, complained of great pain in the region of the left kindey, and catheterization showed almost pure blood. Signs of external violence over the kidney were wanting. Lumbar incision showed large blood clots, and a kidney torn exactly in the same lines as in Case 1, only both lacerations were complete. The viscus was literally in thirds. Only the untorn capsule on the inner border held them together. Suturing seemed out of the question in such a desperate case, and the kidney was removed as rapidly as possible. Venous saline infusion was also used during this operation. Recovery seemed complete when the patient left the hospital two months later.

Case 3.—Male, 35 years old, with stab wound in left loin, transfixing twelfth rib and kidney, and penetrating posterior wall of the descending colon. Laparotomy was done, and it was ascertained that the knife blade had not gone into the peritoneal cavity. Enlarging the lumbar wound, the last rib was found cut squarely in two, the kidney incised in two places, and the posterior wall of the gut lacerated. One wound, at the lower pole of the kidney, was made by the knife, while apparently the other wound, at the upper pole, was made by the sharp edge of the cut rib. The colon was packed and the kidney was sutured. Recovery was rapid and complete, without the formation of fistulae.

The last case was not very unusual, except for its rarity, but the first two were remarkable in two respects. First, in showing the amount of damage which may be done the kidney without external signs of injury, and second, in that the lines of laceration were the same in both cases, and similar to those which have been reported in other cases of subcutaneous rupture. In Gibson's four cases the line of rupture was at the junction of the lower and middle thirds. Another noteworthy feature in Case 1 was the delay with which symptoms developed after such a severe injury.

Cases 1 and 2 are examples of what Kuester (quoted by von Bergmann in System of Practical Surgery) calls rupture by hydraulic pressure. In his experiments on the mechanism of the production of the injury, he shows that in most cases it is due to a force, hydraulic in nature, acting through full vessels and a full pelvis, from the hilum in the direction of the tubules. This is in the line of least resistance, which, judging from the four cases here referred to, seems to be at the junction of the lower and middle thirds. The writer does not know of any other organ in the body where subcutaneous rupture follows laws of any kind.

In very slight renal injury often operation is not justified, and the patient may get well without it, while in a case of injury to both organs, non-operative treatment might be the wisest plan to pursue. An accurate diagnosis as to kidney rupture should be made if possible before exposing the organ, but usually exploration is necessary before this can be done. Then, unless the kidney can be sutured with rapidity and with perfect assurance as to controlling hemorrhage, nephrectomy is the operation of choice. The two great dangers, hemorrhage and infection, as Beall, in the Medical Record, calls them, are thus far better under control. The renal vessels are always to be ligated with silk or linen, never catgut. The writer is familiar with a case where a catgut ligature slipped and caused the death of the patient. Cystoscopy, or other means to determine the presence of the kidney of the opposite side before removing the damaged one, would be valuable, but the patient's condition would hardly ever justify such delay.

TWO CASES OF CEREBRAL INJURY WITHOUT FRACTURE.*

By O. S. McCown, M.D.,
Surgeon to Memphis City Hospital; Associate Surgeon to Lucy Brinkley Hospital.
Memphis, Tenn.

The two cases contained in this report illustrate some of the well-established principles of the physiology of the brain and its relation to head injuries. The second case illustrates the fact that there are exceptions to all rules and that it is impossible to make an absolutely accurate preoperative diagnosis in some head cases as well as in the case of some intra-abdominal lesions. I have made every effort to locate the patient first reported, but have so far been unable to do so. I was especially desirous of obtaining information as to his present condition, as these injuries should all be studied, not only with relation to the immediate operative results, but as to late results as well. This patient was a hospital ward case and they are so transient and unreliable we cannot usually follow them up. The second case is

*Read before the Memphis and Shelby County Medical Society, March 4, 1913.

a private patient and I will report at a later date the condition.

Case 1.—Will B.; black; male; age, 36; single. Little family or personal history obtainable. Patient admitted to the City Hospital ward on the morning of August 8, 1912. Was under the influence of alcohol and rather stupid, but the history of having been struck on the head several times with a stick the night before admission was obtained. There were several short cuts in the scalp over the right parietal bone. The patient was seen by an interne and after cleansing and shaving the scalp and examining for fracture, the interne sutured the scalp wounds. During the day the patient developed constant convulsive movements of the left arm and, though conscious, appeared dazed. The pulse was rather slow and full, but there were no other symptoms. Urine normal. The convulsions of the left arm became more violent. In the afternoon of the same day, probably eighteen hours after the injury, trephining over the arm center area on the right side was done and the area opened. I found the subdural space to contain blood-stained serum and the brain tissue lacerated. The dura was partly sutured, but a small opening left. The scalp wound was closed except for a point of exit for a folded rubber tissue drain. Immediately upon coming out from the anesthetic the patient had a convulsion of the left arm as before operation, but it only lasted a few minutes and was not repeated. The patient left the hospital two weeks after the operation with a moderate degree of weakness in the left arm and still a little dazed, but otherwise normal.

Case No. 2.—As exhibited here is a white female child of fifteen months. On January 2, 1913, this baby was being carried by a seven-year-old brother when the brother fell, falling on top of the baby and striking her head heavily against the floor. This occurred at 6 p. m., and the child suffered no symptoms for two hours, playing around as usual. At the end of this time she vomited and had a general convulsion. Seen by me at 9 p. m., an hour after the beginning of the symptoms. At this time she was in violent convulsions from head to foot, both pupils dilated and totally unconscious. There was absolutely no evidence of external scalp injury and the family could not tell what part of the child's head struck the floor. I was unable from the symptoms present to localize the injury, so I asked Dr. Somerville to see the patient and help me out in this respect. By the time he came, however, the convulsions had ceased and the child had developed a complete paralysis of the left arm and leg. She had partially returned to consciousness and the pupils had become contracted. All convulsions had subsided. Dr. Somervile and I agreed upon a diagnosis of hemorrhage over the right motor area and took the child to the hospital at once and operated. We trephined over the right motor area, finding no clot, but the intra-dural tension was increased and there was blood-stained serum in the subdural space. There was also a very slight ecchymosis of the brain tissue. The symptoms were all gone immediately after the patient recovered from the anesthetic and there have been none since. A folded rubber tissue drain was also used in this case. The convalescence was uninterrupted. The drain was removed on the third day, and the patient left the hospital at the end of a week. So far she seems none the worse for her experience. This was a typical history of middle meningeal hemorrhage, but there was only blood-tinged serum inside the dura and no injury to any branch of the middle meningeal artery nor other appreciable bleeding. In opening the dura I injured a small arterial twig on the surface of brain along the anterior margin of the fissure of Rolando, which I ligated with fine plain cat-gut.

We are all familiar with the fact that brain injuries without fracture are frequent and that these injuries vary from the slightest concussion to the most severe lacerations. I had the experience of doing a postmortem on a patient a few years ago who died thirty hours after falling and striking her head. There was no fracture and only a very slight bruising of the scalp just above the external occipital protuberance, but there was a moderate laceration of the posterior portion of the occipital lobes and extensive laceration of the anterior portion of the frontal lobes with extensive subdural hemorrhage. In neither of the cases reported above was there any fracture or appreciable intracranial hemorrhage, and both cases suffered profound symptoms and both were relieved immediately by operation. These facts would seem to lead to the conclusion that we may have a brain injury without fracture or laceration of any vessel of consequence and still have pressure symptoms as the result of a sero-sanguineous exudate at the seat of injury which demands relief by operation. The localization of the symptoms in these two cases must have been, in part at least, due to the local laceration in the first case and to localized cerebral edema in the second case.

The most serious immediate danger in head injuries in general, aside from direct brain injury, is from pressure, either from foreign bodies, depressed fractures, or hemorrhage; and the indications are for immediate operation, especially in cases of depressed fracture or intracranial hemorrhage. The remote results, while not necessarily

so dangerous to life, are often very distressing. Dr. Murphy[1] says that he would rather die than be rendered unconscious by a blow on the head because of the danger of a subsequent epilepsy, and that in his experience epilepsy may develop at any time, from a few weeks to as late as thirty years, as the result of cerebral injury. Impairment of earning capacity is a serious consideration in many of these cases, as those completely disabled become a charge upon their relatives or the public. In a series of forty-eight cases by Graf[2], quoted by L. Bathe Rawling, 35 per cent were completely incapacitated for any kind of useful occupation. In a series of eighty-six cases by Crisp English[2] 59 per cent suffered no impairment of earning capacity, 34 per cent were partially incapacitated and 7 per cent totally so. In his second series of seventy-eight cases 80 per cent suffered no impairment, 16 3-10 per cent were partially disabled and 3 7-10 per cent totally incapacitated for any occupation. Among the late consequences headache is the most frequent. It varies in degree from that of moderate severity to one of sufficient severity to completely disable the sufferer. Complete or partial loss of sight, complete or partial deafness are sometimes late results and may cause impairment of the individual's usefulness. Traumatic neurasthenia, as shown by change in disposition and other of the usual manifestations of this disease, and traumatic insanity are also among the sequellae. One of the most frequent, as well as one of the most serious after effects of head injuries is traumatic epilepsy. At first local and later general. Inability to stand exposure to the heat of the sun or the use of alcohol are frequent late results, and the headaches, neurasthenic symptoms and epileptic attacks are all aggravated by such exposure or alcoholic indulgence. I have known several sufferers from traumatic epilepsy who never had an attack except after having taken a drink or two.

These sequellae cannot always be prevented, but our most effective means of prevention lies in the early elevation of the depressed portion of the skull in depressed fractures, the removal of foreign bodies where they are accessible, and, most important of all, the early removal of intracranial clots and the checking of intracranial hemorrhage. The utmost care should be exercised as to asepsis, and gentleness in all manipulations should be a part of the technique. Where a large exposure is desired a bone flap should be made and replaced in order to avoid leaving a large bony deficiency.

608-612 Memphis Trust Bldg.

[1]Murphy's Clinics, Vol. 4.

[2]L. Bathe Rawling, The Surgery of the Skull and Brain.

ACUTE ECZEMA EARLY IN THE COURSE OF SYPHILIS.

By H. H. Hazen, M.D.,
Washington, D. C.
Professor of Dermatology, Georgetown University,
Clinical Professor of Dermatology,
Howard University.

(From the Dermatological Department of Freedmen's Hospital.)

The etiology of eczema is still in doubt despite the fact that it is the commonest dermatosis encountered, not only in dispensary, but also in private practice. It is usually taught that eczema is due to two factors, a mysterious sort of diathesis, predisposition or lowered resistance, call it what you will, and to an external irritation. Some dermatologists think that the internal factor is the more important, and some that the external factor is the chief mischief maker.

Two things seem to me to be beyond dispute, first that external irritants will cause a dermatitis that is in every way, including duration, indistinguishable from eczema, and, second, that some inner disturbance is conducive to the outbreak as well as the duration of an attack of eczema.

It is stated by Hyde that syphilis predisposes to eczema, but in literature there seems to be no description of the class of cases that have come to my notice.

Case 1. A negro male, aged 17, came to the clinic complaining of a genital sore and a sore face. The history showed that he had acquired the original lesion three weeks previously, and that the eruption upon his face was of one day's duration. Examination disclosed a typical chancre, general glandular enlargement, alopecia and mucous patches upon the lips. The face and neck were covered with an acute pustular eczema of considerable severity. For two weeks no specific treatment but only treatment for the face was given. At the end of this time, there having been no improvement, he was put upon inunctions of mercury, with the result that in ten days all lesions had disappeared.

Case 2. This occurred in a colored man, aged 22, and was identical with the first case. The sore had been present five weeks, and there was general glandular enlargement. The cutaneous condition which was practically identical with the other case had been present three days. Again for two weeks local treatment only was tried, with no result, but injections of mercury salicylate cleared up the eczema in less than two weeks. Just before the eczema disappeared a papular

eruption, typical of secondary syphilis, appeared upon the body.

Case 3. A negro man, aged 36, came to the dispensary complaining of a genital sore and an eruption upon his neck. The sore had been present five weeks and the eruption one week. Examination revealed a small hard papule upon the foreskin and a papular eczema of the back of the neck. Upon his back were a few scattered papules, suspicious of syphilis. The Wassermann reaction was strongly positive. One week later, despite treatment of a local nature only, the eczema was weeping and more extensive. The lesions upon his back now resembled a corymbose syphilis. Under mercury injections both the eczema and syphilitic lesions quickly cleared up.

Case 4. A negro, aged 19, came to the clinic complaining of a genital sore and universal itching, the latter of three months' duration, and the former of three weeks. Examination showed a severe case of scabies, a typical chancre and a papular eczema of face, which he stated had been present only three days. Patient was then lost sight of.

In these four cases the question naturally arises whether this eczematous eruption is one of the manifestations of syphilis, that is, due directly to the spirochaete, whether it is merely a coincidence, both diseases being common, or whether a typical eczema develops upon a syphilitic patient because of his lowered resistance.

With regard to the first point in two of the cases no spirochaetes could be demonstrated in the lesions, and the histopathology was distinctly that of eczema and not of syphilis, for there was none of the perivascular small celled infiltration so characteristic of lues. With regard to the second point in over three hundred patients suffering from secondary syphilis there was no eczema except in the four cases just quoted, so it is probable that the third possibility must be true, especially as the time just before the occurence of the secondary eruption is usually considered the period when the luetic virus is at its height.

MASTOIDITIS.*

By S. Kirkpatrick, M.D.,
Selma, Ala.

Diseases of the mastoid are seldom primary, but generally occur from the extension of a suppurative process of the middle ear.

*Read at the ahnual meeting of the Medical Association of the State of Alabama, Mobile, Mobile, April 16, 1913.

In order to enter into a comprehensive discussion of this subject it is necessary for you to have a broader conception of the term middle ear than has heretofore obtained, and should always think of it as including not only the tympanic cavity, but also the Eustachian tube, and at least in a very closely associated way, the accessory cavities of the mastoid antrum and the mastoid cells. This rather considerable area belongs to, and is in direct communication with the respiratory tract by means of a pouch of mucous membrane—a diverticulum of the naso-pharynx—beginning at the naso-pharyngeal orifice of the Eustachian tube, and ending in the mastoid cells at the tip of the mastoid process. Physiologically, the importance of this connection is for ventilation and drainage; pathologically, it furnishes a road for the passage of micro-organisms into the recesses of the mastoid cells. It is evident therefore that any constitutional or local condition which interferes with the action of the ciliated epithelium lining the middle ear tract, and with the functions of the Eustachian tube, lowers the resistance of the mucous membrane lining, and predisposes to otitis media and its complications.

Acute mastoiditis is nearly always secondary to a previous infection and suppuration in the middle ear. We shall therefore consider some of the most important predisposing and determining causes of middle ear infection. The mouth of the Eustachian tube is relatively larger in infancy and childhood and the angle of inclination less—being about ten degrees, and the adult about forty degrees—hence, is more liable to invasion by the pathogenic micro-organisms which usually swarm in the naso-pharynx. Constitutional conditions, which alter the secretions, cause swelling of the mucous membrane, interfere with the ciliated epithelium, and lower the resistance of the lining mucosa, render the ear more vulnerable.

The most important local factors are adenoids, hypertrophied and diseased tonsils, and intra-nasal irregularties: such as a deflected septum, spurs, polypi, enlarged turbinates, and nasal empyema, due to infected accessory sinuses.

The methods of action of local predisposing causes are:

(a) Mechanically, by obstructing the tube interferring with drainage and areation, with consequent lowering of the vitality and bactericidal function of the mucosa, and (b) by an abnormal secretion of thick, ropy mucus or germ-laden pus, which, because of the obstructed condition of the nostrils, is difficult, and often impossible, to completely dislodge, and is blown into the ear.

The nasal douche, diving, and improperly blowing the nose, attempting to force air through an occluded nostril, or one filled with pus, and especially the dainty method practiced by the fair sex of holding both nostrils with the handkerchief, instead of leaving them unobstructed or compressing each side alternately, are frequent methods of conveying infection to the ear and mastoid cells. The free communication between the naso-pharynx, the tympanum, and mastoid antrum is such that diseases due to micro-organisms arising in the first-named part frequently affect the others. Once they gain entrance into the mastoid antrum and the adjoining mastoid cells, they are entirely removed from the influence of antiseptics applied to the middle ear.

Scarlatina, measles, lagrippe, and diphtheria, dangerous to the ear at all times, become a greater menace in the presence of the above abnormal conditions. Arthur B. Duel, in a study of 6,000 cases of scarlatina, measles, and diphtheria in the Willard Parker Hospital, found acute suppurative otitis media in 20 per cent of the scarlet fever cases, 10 per cent of the diphtheria cases, and about 5 per cent of the cases of measles. There were twenty-six mastoid cases. A careful examination of your cases of lagrippe, assuming the catarrhal type, will disclose a surprising frequency of involvement of the middle ear, as well as other accessory nasal cavities. In fact, a pan sinusitis is the rule in epidemic influenza, and the principal cause of a tedious convalescence.

Two to four per cent typhoid have ear complications. In the complications of middle ear inflammation, such as mastoiditis, miningitis, sinus-thrombosis, epidural abscess and brain abscess, practically all forms of pathogenic bacteria have been found. Probably the most common is pneumococcus; the next most frequent, the streptococcus pyogenes; and, lastly, the staphylococcuc, albus, citreous, and aureus. In the opinion of Preysing, the otitis media of children is a pneumococcic infective disease. The pneumococcus runs a quicker course, has a greater inclination to extend its field of infection, and to remain latent a longer time than streptococcus. The streptococcus is most virulent, has a tendency to attack the bone, but sooner loses its virulency. The stapylococcus is probably the most frequent cause of secondary infection, and therefore is responsible for the chronicity of aural suppuration.

In the early stage of influenza there is a specific form of otitis media, due to the influenza bacillus which is found in the secretion of the middle ear, gaining entrance through the blood stream. Later, we have a secondary infection of other bacteria. A special peculiarity of this type is the intensity of the pain, which may outlast the incision of the drum membrane or spontaneous rupture. A monobacterial infection is more favorable than a polybacterial infection. We should be careful not to introduce new and more virulent bacteria, and for this reason most careful asepsis should be carried out.

Pathology.

The anatomical changes at the beginning of the process are indicated by a marked hyperaemia, which is soon followed by the muco-purulent exudation into the tympanic cavity and mastoid antrum. The exudate consists of a thick, cloudy fluid, mixed with mucus and pus cells, and also contains many red corpuscles. A hemorrhagic exudation is met with in a few cases, especially in influenza.

Politzer has shown by numerous post-morterms that pus is found in the mastoid antrum and cells in every case of middle ear suppuration.

The muco-periosteum, which lines and nourishes the tympanum and antrum, performs a similar gracious service for every pneumatic cell and space contained within the mastoid process, and by its continuity insures uninterrupted communication between the middle ear and the most remote portions of the bone. Another method of distributing bacteria is by the veins and lymphatics. A noteworthy feature of these inflammatory changes appears in the fact that they are encountered at great distances from the distributing infective center, with intervening healthy structure. This has a practical importance when we come to treatment, and emphasizes the expediency of the complete operation.

Symptoms.

The writer realizes that if this paper is to be of practical value to the general practitioner, who usually sees the cases before they come to the specialist, it must describe plainly and concisely the symptoms and treatment. Inasmuch as mastoiditis is nearly always the end result or an associated condition of the middle ear suppuration, it is proper that we describe the symptoms from the beginning of the middle ear infection to the terminal stage in the mastoid cells. Usually the first symptom to which our attention is directed is an "ear ache." Too much importance can not be attached to this initial symptom. I know of no other one symptom in the whole catalogue of diseases that is so little understood

and so disregarded, and certainly none so fraught with potential evil. It nearly always means an inflamed ear, and when occurring in the course of typhoid fever, pneumonia, influenza, head colds, "sore throats," and the exanthemeta, it is a red flag of warning that the enemy has invaded new territory, and is still on the march. I urge the more common use of the head mirror and ear speculum. With a good light you can see and appreciate these inflammatory changes in the tympanic cavity, and its frequent use in the above named general diseases will assist you in clearing up many obscure symptoms and complications.

In children under three years of age pain in the ear can be told only by careful observation. Boring the head into the pillow, hanging the head to one side, placing the hands to the affected ear, refusing to nurse, malnutrition, fretfulness, and a rise of temperature should lead to a careful inspection of the ear of these little patients.

In older children the symptoms are very pronounced, and just prior to perforation of the drum membrane the pain is often excruciating. There may be vomiting, unconsciousness, and convulsions. When perforation takes place there is usually an immediate relief of all the symptoms. In childhood, the tendency to relapses is a prominent characteristic of otitic inflammation.

While it has been proved that pus has been found in the mastoid antrum and cells in every case of middle ear suppuration, it does not imply that an abscess has formed in the process. One can speak of a mastoiditis only, when owing to swelling of the mucous lining or imperfect drainage, stagnation occurs, and pus can not escape from the cell cavities, and inflammation of the osseous tissue supervenes. It may be produced by this means alone. In those cases where free drainage is interfered with, mastoid symptoms become manifest, and then the original disease sinks into a place of secondary importance. It is no longer called "otitis media," but is called "mastoiditis." The early symptoms are chiefly those of pressure from retention of secretions within the cells, pain and tenderness upon pressure over the mastoid process, and certain constitutional disturbances to be described later.

All text-books tell us that mastoiditis is characterized by heat, redness, pain, swelling, rigors, and high temperature. Gentlemen, the sooner you forget these things the better it is for the patient. These are the sign boards on which are written innumerable tragedies. The physician who waits for the appearance of such a clinical picture is in the same class as he who will not make a positive diagnosis of tuberculosis until the suptum contains the tubercle baccilli; nor of appendicitis, in the absence of a "lump" in the right illiac fossa, associated with chills and high temperature.

The clinical history of mastoiditis is very similar to that of appendicitis. The close observer may detect danger signals long before the classical picture comes into full view. The chief object in writing this paper is to point them out to you, and assist in an interpretation of their significance.

To simplify the symptomatology, I shall arbitrarily divide mastoiditis into three types, namely, the fulminating, the remittent, and the chronic. The fulminating variety is characterized by severity of onset, and the rapidity with which all of the adjacent structures of the temporal bone are invaded. This is the only form in which the temperature runs high. The pain is excruciating, and is not much relieved by free drainage or other measures usually resorted to. There is usually a free discharge of bloody serum from the middle ear after the drum is incised or ruptures. It is usually due to a virulent streptococcus infection. In remittent forms, the patient seems to be getting better at times, and then without any provocation whatever, has a return of the old symptoms at irregular intervals, until he is either driven to an operation, or some vital structures become involved. There is frequently a cessation of discharge from the middle ear, and the drum membrane may heal, to again rupture and discharge freely in a few days. These remissions may be repeated for several weeks, but in the meantime our false sense of security will be somewhat disturbed by the fact that our patient does not fully recover his normal health and vigor. In the chronic type the pain and tenderness largely disappear. The aural discharge diminishes very much or disappears entirely. Occasionally the drum heals and appears normal except some thickening and a slight redness along the long process of the malleus. The pus is walled off in the mastoid process, and undergoes either a gradual absorption with sclerosis and eburnation, or there is a progressive destruction of bone and extension into vital structures. It is usually accompanied by a mild form of toxaemia and obscure mental symptoms.

The following symptoms are common to all forms of mastoiditis, and should be our guide in determining the course of treatment. The aural discharge may be scanty or profuse. With a

tough drum and free communication with the antrum through the additus, it is possible to have mastoiditis without any discharge from the ear. When the aural discharge has been copious for several days and suddenly stops or diminishes in quantity, and the other symptoms do not improve paripassu, it indicates that drainage is interferred with, and the secretions are dammed back into the mastoid process. A bloody serum is indicative of a very virulent infection. A profuse and long-continued flow of pus means an extensive involvement. An intermittent discharge from the ear suggests that the trouble has extended beyond the tympanic cavity, and is in an overflow from the mastoid cells. A sagging or bulging downward of the post superior canal wall is considered pathognomic and a strong indication for an immediate operation.

Temeperature—Except in children and the fulminating type the temperature never runs very high, but it has one peculiarity which is especially significant. If taken two or three times a day, we are apt to conclude that our patient has no rise of temperature, but if carefully taken and recorded every two hours, you will invariably find a small but positive fluctuation of from two to four-fifths of a degree above normal to a like amount below, several times in the twenty-four hours. I regard this "see-saw" movement of the temperature as the most important phenomena in the diagnosis of a suspected mastoiditis. Chills and rigors are the exceptions in uncomplicated mastoiditis, but there is a toxaemia characterized by a sallow complexion, a rapid, high tension pulse, furred tongue, and sweats, often soaking the night clothes.

Pain—Pain is a prominent symptom throughout the disease. It originates behind the auricle and radiates toward the temples and upward to the vertex, or down the neck and shoulders. It is usually a dull ache in character and aggravated by a cessation of the aural discharge, and is more severe in the early than the late stage of the disease.

Tenderness is most pronounced over the antrum, at the tip and posteriorly over the entrance of the mastoid vein. It is best elicited by pressing with the thumb with sufficient force to blanch the distal third of the nail. Both sides should be tested, as some patients, especially the hysterical, have unusually sensitive mastoids. On the other hand, it is not unusual for a patient to submit to great pain without flinching to avoid a much dreaded operation. Tenderness on deep pressure is a constant symptom. A blood count is often a valuable aid. A low leucocytosis and a high polyneuclear indicates a severe infection, and a poor resistance on the part of the patient.

Transillumination is based on the fact that the healthy mastoid will transmit light, while a mastoid filled with pus or granulations obstructs the passage of light. The test is made by means of a small incandescent electric lamp, covered with a soft rubber hood. The examination is conducted in a darkened room. An ordinary ear speculum is placed in the meatus so as to expose the drum and posterior canal wall. The lamp is placed against the mastoid and the light turned on. When the mastoid is normal the light can be seen in the auditory canal. When the mastoid is filled with pus or granulations the canal remains dark.

The occurrence of edema over the mastoid process, while frequently significant of mastoid inflammation, is more usually characteristic of a furuncle of the posterior auditory canal. It may be differentiated by the intense pain caused by moving the auricle up and down, and a careful analysis of other symptoms and signs. A fluctuating swelling over the mastoid process naturally indicates that there has been a suppuration within the mastoid cells, and that the abscess has evacuated itself spontaneously through the cortex. In small children the pus easily makes its way through the ununited sutures, and raises the periosteum in an upward direction, and forms a swelling just behind and above the auricle. Frequently we find in a case of mastoiditis a rather diffuse swelling beneath the stenomastoid muscle. This swelling seldom gives any sign of fluctuation, and is an indication of the rupture of a mastoid abscess through the mastoid tip into the digastric fossa beneath the stenomastoid muscle. It goes without saying that mastoiditis should be recognized long before rupture of the cortex takes place.

Treatment

The management of this disease is abortive and operative. If the case is seen before spontaneous perforation of the ear drum has occurred it should be freely incised. The incision should be a long curved one, so as to make as free an opening as possible.

Cold applications by means of an ice bag should be kept on the mastoid continuously for the next twenty-four hours. Absolute rest is enjoined. The ear is irrigated at intervals of every two or three hours with hot bichloride solution, 1 to 6,000. The diet is restricted, and a brisk purgative administered. Opiates and antipyretics

mask the symptoms, and should not be used if possible. I always put these early cases on 15 grain doses of urotropin every three hours, and quite a few cases respond favorably to the mixed vaccines. Thus treated, many of the milder, acute mastoid inflammations are cured or aborted.

In the acute infectious diseases our efforts should be directed to assisting nature, and preserving the function of the Eustachian tube. This is brought about by nasopharyngeal aid through the use of astringents and antiseptic applications, such as Dobell's solution, adrenalin, silver albuminoid compounds, or nitrate of silver. A daily inspection of the middle ear should be a common practice in these cases.

Even though the acute symptoms disappear, and the patient appears to be well, but still has an ear discharge, a cure is not effected. A patient should have no discharge from the ear. Eradication of the suppurative process should be the ultimate aim of the treatment.

Sometimes the above treatment fails to afford relief. The symptoms increase in severity in spite of free drainage from the middle ear. Our patient is prostrated from the pain and consequent loss of sleep—toxaemia is in conspicuous evidence. This is the fulminating type and should be relieved by an immediate operation.

In the remittent type there is subsidence of all the acute symptoms in a few days. The patient assures us that he is much better, and we entertain the hope that he will escape an operation on the mastoid process. In a few days he returns, complaining that whereas the discharge from the ear is less copious, that he has "neuralgia" in that side of the head; that he does not sleep well; that his appetite is poor; that he feels weak, and that he perspires too freely at night. Symptomatic treatment relieves him temporarily, and the incident is probably repeated several times before it passes into the chronic type, or we are awakened to the fact that our patient is walking about with the equivalent of a charge of dynamite in his head.

If the remittent type does not prove fatal by extension of the pathological process to some of the vital structures which so abundantly surround this axial center, it gradually passes into the chronic type.

The insidious progress of chronic mastoiditis makes it a formidable condition. It is not necessarily characterized by any special symptom. Mastoid pain and tenderness are often absent. There may be foul smelling discharge—sometimes it is intermittent or so scanty as to escape attention. The drum may even heal, and the process be walled off in the mastoid process proper. The mastoid bone often undergoes an eburnizing sclerosis, the cortex becoming quite dense, and the cells replaced by the dense bone. A neuralgic pain frequently accompanies this sclerosing process.

On the other hand, caries and necrosis is a frequent result of these pent up secretions. This is especially true of the tubercular patient. Intracranial complications may be the first local symptoms to develop. Acute exacerbations of chronic mastoiditis or acute mastoiditis, developing in a case of chronic suppurative otitis media is especially dangerous.

In this day of surgical enthusiasm it seems superfluous to urge immediate operation on every case of mastoiditis that does not respond readily to appropriate local and constitutional treatment. But while otology has kept pace with the rapid advance made in other branches of medicine and surgery, it is ineffectually taught in our schools, and sadly neglected by the general practitioner.

It is not the purpose of this paper to describe the modern mastoid operation, but to arouse a greater interest in diseases of this, the most important bony cavity in the body.

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THE LINGUAL TONSIL.

By Dr. L. DePoorter,
Visiting Aurist and Laryngologist, Charity Hospital, New Orleans, La.

Notwithstanding the amount of study and labor which has been given for years toward the treatment and management of hyperplasia of the lingual tonsil, yet a diligent and careful research of the many volumes of text-books of recent years and the immense library of both American and

English journals and periodicals which were at my disposal, it is much to be regretted that very little information was gathered which could in any way give sufficient data in the technique and methods used to enable us to properly undertake and relieve a condition most distressing and annoying.

To more fully understand what is meant by hyperplasia it will not be amiss to give first a brief anatomical review of the lingual, or fourth, tonsil. Normally it is situated in the glosso-epiglottic fossa in close touch with the base of the tongue and the vocal organs and forms a part of Waldeyer's lympoid ring, and anatomically does not differ from the faucial and pharyngeal tonsil only as regards its histology and pathologic changes which features its development. It rests upon fibres of lingual muscles, but separated by a layer of connective tissue, and each gland so developed as to give the appearance of two individual tonsils, one on each side of the median line. They are follicular glands, are irregular and vary in number and size, and upon the last two conditions depends the greater susceptibility of probable and earlier hypertrophy and more prominent symptoms. It is a lymphoid area and the parts are drained through the deeper lingual glands where communication exists still further with the cervical lymphatics near the bifurcation of the common carotoid artery.

The tonsil is spread over the base of the tongue and does not project outward, being less elevated than the other glands included in this group. Normally it is always present and in a healthy state leaves a clear space between the tongue and epiglottis.

The lympth masses remain isolated and not bound, so that each individual gland is easily recognized, there being a well-marked interspace between them. Upon the number of follicles in the true lymphoid tissue depends in a measure the extent of the enlargement, as many as twenty in some cases, but in the majority of instances half that number, all more or less massed together by the sub-mucous layer, while its surface is the continuation of the pharyngeal mucous membrane. The presence of mucous and albuminous glands are the only essentials which distinguish this gland from the faucial and pharyngeal tonsil.

I believe that hypertrophy of the tonsil exists early in infancy, but this is disputed by many. Nevertheless, it has been found in early childhood; some observers noting the hyperplasia in ? cent of children. Hickman's case of a child dy[illegible] of asphyxia at birth, where the autopsy revealed an enormous hypertrophy of the lingual tonsil, would confirm its presence and negatives the theory of many as to the age at which this condition can exist. While the majority of observers are of the opinion that hypertrophy of the fourth tonsil occurs more frequently in females, my own observations, which cover a series of about eighty cases, in a period of almost six years, do not bear out this theory. In my cases the sexes were almost evenly divided, the preponderance, if any, being with the males. Owing, however, to a high-strung temperament and hypersensitiveness and the neurotic elements, the symptoms were more marked in the female. The factors which produce this hypertrophy are those which act on all tissue of this character, the same as produce faucial tonsillitis, hypertrophy of the pharyngeal tonsil, and in many cases disturbances of the gastro-intestinal tract. I must note, however, with all due deference to the stomach specialist, that many cases of so-called gastric disturbances were completely relieved by attention to the lingual hyperplasia. Do the gastric disturbances cause this hypertrophy or vice versa? Constipation, or any chronic visceral affection will contribute to this hyperplastic change and become a contributing factor.

The gouty diathesis, acute infectious disease, drinks, condiments, food excessively hot or cold, alcohol, overwork, exhaustion, while not primary, are at least contributing causes. Some authors have gone so far as to maintain that there exists some relationship between the hypertrophy of the lingual tonsil and the female generative organs, and that at certain functional periods of life there is a manifest enlargement of the lingual tonsil. I must admit that my observations have not led me to note this; in fact it did not occur to me to go so deeply and minutely. Pregnancy, so it seems, rarely exerts any influence, but may exceptionally, as in a case mentioned when at the sixth month the patient was completely relieved of an incessant cough by an application of a weak solution of cocaine to the lingual tonsil.

Catarrhal affections of the upper respiratory tract, vitiated buccal secretions can be causative factors.

Elongated uvula by constant friction may produce hyperplasia of the tonsil. The prominent symptoms distinctly localized to this region may be direct or reflex.

Cough, sensation of foreign body, paraesthesia, dyspepsia, hemorrhages are other symptoms; of these the most frequent are those of cough and foreign body sensation. Cough, in children especially, is the most frequent. It may be hard in

character, sharp or metallic, and occurs in the absence of other lesions of the respiratory tract, without expectoration, and can be made to disappear by anaesthetizing the surface of the gland.

In this connection I desire to report the case of a white female, ten years of age, operated on for adenoids and enlarged tonsils, where there was associated also enlargement of the lingual tonsil. I remember distinctly her several visits to her physician, who insisted that no tubular or pulmonary lesion existed, and also the anxiety of the parent. There were no adenoids or hypertrophied tonsils. A laryngoscopic examination revealed the presence of a very large lingual tonsil. Attention was then directed to its treatment and in the space of three weeks the cough ceased and the girl's weight increased ten pounds.

Of all the coughs, and I mean by this the extra pulmonary coughs, the most frequent is that caused by the hyperplasia of the lingual tonsil, and careful examination of this part of the respiratory tract is always indicated to guard against probable errors of diagnosis.

Next in frequency to the cough is the sensation of a foreign body in the throat. Perhaps it is only of nervous origin, a hysteria in neurasthenics, with only a slight enlargement of perhaps one follicle, not at all sufficient to arouse the distressing experience. The foreign body sensation is as a rule more distressing when the enlargement is in the median line. In many cases the enlargement is so prominent as to practically fill the lower pharynx and creates a sensation of fullness, a purely mechanical condition, easily corrected by proper surgical measures. In the neurotic element the paraesthesia assumes a variety of forms, in turn leading to state of hysteria.

In a patient seen by me one year ago this condition was manifested to a marked degree.

A young married woman, 22 years of age, thin, emaciated and highly nervous, applied for treatment, complaining of a choking which at times caused dyspnoea, vomiting, restlessness and inability to swallow even liquids. She had been bedridden for one year, and was on the verge of hysteria. Upon examination an enormous mass was seen at the base of the tongue so close to the epiglottis that it apparently formed part of it. Upon being told that the seat of trouble in the throat was the source of all the nervous phenomea she was reluctant to undergo treatment unless she could be assured of permanent relief. Fortunately for the sufferer I was able to accomplish this within two weeks. The results were gratifying inasmuch as the nausea, vomiting and restlessness had disappeared. The patient could take nourishment with comfort and relish, and from a thin, emaciated patient had become a healthy and robust woman.

No difficulty, except in obscure cases, should be experienced in determining and recognizing the growth if the laryngoscope be used.

The treatment which I have used in great measure depended upon the character of the symptoms present, and suitable to each individual case. Attention to health, avoidance of stimulants and irritating foods, and a daily application of a silver solution up to 75 grains to one ounce generally prove satisfactory, where operative measures are not necessary.

In a great majority of cases surgical measures are indicated, and as the removal of the tonsil is attended with no bad results it is advisable that this method be employed, the choice of procedure and of instruments depending upon the individual under observation.

In the preparation of the parts care must be exercised if the destruction of this gland is to be attended with any success. Most essential is the control of the pharyngeal and palatine muscles. This can be readily accomplished with a spray containing a 20 per cent solution of cocaine. The practice of local application of the 10 per cent solution to the gland is to be discouraged, if not condemned, for the reason that a large amount is necessary and in many instances causes much distress and at times becomes dangerous. I have found that a Schleich solution No. 1 injected into the gland by means of a long curved needle is followed with no pain or discomfort, and that the whole surface of the tonsil can be cauterized or excised at one sitting. Greater importance than heretofore should be attached to enlargements of the lingual tonsil, especially in those cases where incessant coughing and gastric disorders are conspicuous symptoms. It may be discovered that the application of some radical treatment for the reduction or removal of the tonsil, even when the enlargement of the gland is scarcely beyond its normal size, will be followed by the most favorable results.

Myles' tonsillotome is not a good instrument unless the growth be large. Roe's tonsillotome is better adapted, and very serviceable long, curved scissors are even more satisfactory when used prior to galvano-cautery. The galvano-cautery is, however, the method of choice in our clinics.

ALBUMINURIC RETINITIS.*

By C. M. Sandusky, M.D.,
Jacksonville, Fla.

On account of the very unfavorable prognosis associated with chronic Bright's, it is of the greatest importance that a diagnosis be made at a time before the disease has advanced to the later stages. It frequently happens that the oculist by his findings with the ophthalmoscope, is the first to recognize chronic nephritis. The individual consults him on account of a sudden or gradual loss of vision and a glance at the retina reveals the dread disease. The field of ophthalmology presents no subject of greater importance than that of retinitis in the course of kidney disease, and this fact is emphasized for the reason that the condition may frequently be detected by the ocular changes long before other symptoms are manifest.

The association of diminished vision with disease of the kidney was suspected long before the invention of the ophthalmoscope. Authorities claimed that the loss of vision was one of the earliest symptoms of Bright's disease and appeared and disappeared according to the presence or absence of albumen in the urine. Although the failure of vision was ascribed to renal disease when accompanied with lumbar pains, swelling of the lower extremities, ascites, etc., the true condition of retinitis was yet to be recognized.

When, in 1851, Helmholz perfected the ophthalmoscope, an exact means for the examination of the fundus was at hand, and the eye-ground so characteristic of this disease was soon accurately described. This retinal inflammation occurs in about 30 per cent of all cases according to the consensus of opinion among eminent authorities on Bright's disease and seems to be more frequent among males than females.

This affection is commonly encountered among middle-aged and elderly persons, but may frequently occur in younger individuals. A case is reported by Bull occurring in a child of five years, but it is extremely rare under the age of twelve. While the affection is usually bilateral it is often found unilateral. Several authorities have proved by subsequent autopsies that only one kidney was affected in a number of cases of unilateral retinitis. This is related merely as an interesting fact and not as an inference precluding the involvement of both retinae where only one kidney is diseased.

The contracted kidney in the parenchymatous form of Bright's is found to be associated with retinitis in the greater number of cases, but any form of kidney disease may have it as a concomitant symptom. The large waxy kidney associated with amyloid or lardaceous degeneration is conceded to be next in frequency as the causative factor in retinitis. In most cases the ocular changes are due to chronic renal disease, but sometimes transient functional disturbances of the kidney gave rise to slight visual changes, particularly in the young. It is well to state here that changes in the heart may be expected to become manifest at about the same time the retinal affection becomes evident.

In the acute form of retinitis due to renal disease, we find congestion of the blood vessels, hemorrhages of the retina and swelling; the usual phenomena associated with an acute inflammation of any part or organ. Vision is dependent on the size, number and location of the hemorrhages and the extent to which the optic nerve is involved. The chronic form is characterized by degenerative changes as instanced by old hemorrhages and dirty white spots. While the exact relationship between nephritis and retinitis is not thoroughly understood, it is generally accepted as merely an extension of the degenerative process of the entire vascular system into the tissues and blood vessels of the eye.

The subjective symptoms of this form of retinitis are few and not very distinctive. Diminished vision, which is not improved by glasses, headache and a sense of fulness about the orbit, comprise about all. The visual fields and color perception remain unimpaired unless there is a coexistent neuritis. A number of ocular changes may be associated with nephritis; the uveal tract may be the seat of the inflammation, opacities of lens and vitreous may occur, likewise paralysis of the extra-ocular muscles. Blindness may occur without any perceptible changes in the fundus.

Hemorrhages of the conjunctiva occurring without apparent cause is considered a frequent premonitory symptom. Such hemorrhages occur usually while asleep and are discovered on arising. While such hemorrhages are common during the actual existence of a nephritis, there are many cases where examination fails to detect any disease of the kidneys. In some two score cases observed by Fox of hemorrhages of the conjunctiva, while no renal symptoms were present then, they all developed them at a much later date.

In a case of albuminuric retinitis the ophthal-

*Read before the Florida Medical Association.

moscope shows the course and caliber of the arteries and the translucency and reflection of these vessels disclose marked departures from the normal. The white stripe along the arteries is characteristic, and is due to degenerative changes in the walls. There may be undue tortuosity of the arteries, general contraction, which makes them appear smaller than normal or alternate contraction, and widening, which gives them a beaded appearance.

The retinal veins show signs of increased pressure, they are unduly tortuous and engorged, and show evidences of hampered circulation where crossed by an artery. Normally, a vein is not impeded when crossed by an artery, and is clearly visible beneath the translucent artery; in this disease this translucency is lost, and the vein is invisible beneath the artery. The veins show the same white lines along their course as the arteries, and this is due to the same degenerative changes.

Retinal oedema is always present in a well-defined case. Hemorrhages may range from a few minute extravasations scattered about the fundus to broad flame-shaped exudations covering practically the entire field. Absorption of these hemorrhages and subsequent atrophy of the affected portion of the retina gives rise to the whitish spots seen scattered over the fundus in old cases. Albuminuric retinitis never affects a retina which is already the seat of atrophy, no matter how severe and well marked the case of Bright's disease which may follow.

In order to fully appreciate the changes which take place in an eye-ground during the course of renal disease, one must keep in mind the general and progressive arteriosclerosis which affects the entire system, but observed in no place but the fundus of the eye. At the inception of an albuminuric retinitis, the first noticeable change is an increased fulness of the retinal veins, which become darker in color and more tortuous. The arteries may appear slightly smaller at this time, or they may be unaltered. The optic disc soon becomes hyperaemic, then a blueish or gray swelling supervenes about the margin of the disc, this is serous infiltration. The outline of the disc is no longer sharp, but appears blurred, the retina and its vessels are no longer translucent, the right reflex is diminished and the entire structure is dull. The underlying choroid at the disc margin is obscured and small hemorrhages begin to occur throughout the fundus. While ordinarily the swelling and infiltration of the optic nerve is not great, it sometimes happens that it becomes very considerable, taking on the appearance of choked disc.

The hemorrhages, as stated before, may vary in size, shape and location. Location in a large measure determines the shape which may be found, flame-shaped or linear. Hemorrhages in the external layer of the retina are round, those in the nerve fiber layer flame-shaped. Subhyaloid hemorrhages between the retina and vitreous are usually large and massive and more or less round.

The distinctive characteristic of this affection are the white spots of degeneration. These spots vary in shape and area in accordance with the size and location of the hemorrhages. There may be only a few yellowish-white dots, or there may be great, dirty-white patches with all gradations between. In the region of the macula, the spots are frequently arranged in the form of a star with the fovea as the center. The pathology of these spots consists of a fatty degeneration of the fibers of Mueller and of the granular layer, in conjunction with hypertrophy and round cell infiltration of the nerve fibers themselves.

Syphilitic retinitis, which is said by Alexander to occur in 8 per cent of all syphilitic cases, and diabetic retinitis, present no material points of difference from retinitis due to nephritis, particularly in the early stages. In its more advanced stages syphilitic retinitis shows the white spots as less brilliant and glistening than in the albuminuric form and extravasations of blood are less frequent and less pronounced. In diabetic retinitis, hemorrhages and opacities in the vitreous are more common than in the albuminuric variety. It is impossible to differentiate albuminuric retinitis from either of the foregoing forms by means of the ophthalmoscopic findings. The differential diagnosis must be established by the clinical findings, case history and careful analysis of the urine. To this end, the co-operation of the oculist and the family physician is of vital importance.

Assuming that the case is one of albuminuric retinitis from the characteristic changes in the eye-ground, confirmation clinically is always necessary. If such a case is confused with retinitis due to some other cause, as syphilis or diabetes, it is of equally serious import. A careful analysis of the patient's urine, the condition of the blood and circulatory system and an accurate history of the case will determine the line of treatment to institute.

The general constitutional treatment of Bright's disease is not within the province of the oculist

to assume. The patient should be under the care of a physician in the management of such cases. Locally, the oculist can do but little. Physiological rest is of the first importance, and all refractive errors should be given the best possible correction. The progressive degenerative changes which the retina undergoes, and the basic fact that the natural tendency of the disease is not toward improvement, render the prognosis as regards vision grave. The exact amount of vision will depend upon the number, location and extent of the hemorrhages and the degree to which the optic nerve and other structures are involved.

The outlook as regards life is distinctly unfavorable. Nettleship reports forty-two consecutive cases, only nine of whom lived for more than two years, and of whom twenty-five died within one year. Most authorities agree that the great majority of patients die within two years. Fox reports a case where the patient was living seven years after the retinal changes were first noted. In interstitial nephritis and in patients upwards of fifty years of age, there is a better outlook toward the prolongation of life. In the retinitis incidental to pregnancy and the infectious diseases, the prognosis is much more favorable toward life, and often the retinal hemorrhages are followed by resolution and absorption and consequent improvement of vision. Retinitis associated with chronic parenchymatous Bright's or fatty or lardaceous kidney in individuals under forty years of age, the expectation of life is diminished to a very few months.

All of the importance of albuminuric retinitis from any standpoint, oculist's or clinician's, lies solely in its early diagnosis. The general physician who usually lacks the requisite skill to use the ophthalmoscope and which can only be attained through long training, is thus debarred from the employment of one of the most valuable means of diagnosis. As the general symptoms referable to Bright's disease, the headache and partial loss of vision are common to many less serious affections, in the absence of expert advice and treatment, such a victim might lose precious time and go untreated until too late for any measures to be of assistance. As it frequently happens that the changes in the vascular system are striking and characteristic and of early occurrence, and as it is in the fundus of the eye alone that we are able to see these changes pictured, in the absence of other definite symptoms, it might frequently happen that the ophthalmoscope would be the means of revealing the cause and indirectly be the agent for adding years to many useful lives.

THE MEDICAL PROFESSION AND MEDICAL EDUCATION.*

By W. F. R. Phillips, M.D.,
Professor of Anatomy, University of Alabama,*
Mobile, Ala.

It is self-evident that the product of any educational system must sustain an exponential relation to the efficiency of the system. It must also be self-evident that the relation between the system and its product is essentially a circular one—that is, some of the product must eventually be incorporated into the system as an integral part of it to perpetuate its existence. In other words, an educational system is necessarily a self-perpetuating system—a more or less constantly inbreeding system—inbreeding its virtues, as well as its vices, its excellencies, as well as its deficiencies. It appears, however, that faults and defects are more prone to develop under inbreeding than are virtues and excellencies. The saving of the system from the pernicious effects of inbreeding will therefore depend apparently upon the subsequent experience gained under the conditions under which the product has existed from the time of its emergence from the system to that of its reception back into it. Therefore, if the success of an educational system is dependent upon its product, it is of paramount importance that the direction and impulse given the product shall be such as to impart to it a correct educational trajectory. It is equally obvious that the product should expect and even demand this obligation of the system, not because of its ultimate effect upon the system, however, but because education is sought primarily for the purpose of giving this correct trajectory to the product for its own sake.

The function of education may be defined as the bringing out and developing of the inherent qualities of the individual with the intent of making the individual as useful a member of the social organization as his innate capacity will admit—making him a good citizen in the fullest sense of the word, and that in the shortest time and with the least expenditure of time and energy. One of the first essentials of educative effort is that the community as a whole shall have a true estimate of the nature and value of education.

Professional education has for its purpose the

*Read before the annual meeting of the Medical Association of the State of Alabama, April 17, 1913.

development of the capacity and powers of the individual in certain special lines—the qualifying of the individual for specific functions—specialization for short. Professional education of itself, therefore, tends to contract or narrow the intellectual vision—to put the individual into a mental rut—to confine his interests, activities and sympathies to his specialty. While this tendency is true of professional education, it is also true that any other intensive occupation, business or otherwise, has the same general drift—the concentrating and circumscribing of the intellectual attitude of its votaries upon its greater importance in the sociological scheme of the community. A man's hand held in front of his eyes will hide a mountain—and yet the mountain is larger than his hand. It is for this reason that in the profession of medicine, especially, there is need of an educational foundation so broadly laid and so far elevated above the level of general education as to insure that the professional superstructure to be erected thereon may rise sufficiently high to afford a commanding view and a correct orientation of its relations to its surroundings and its purposes.

In the early history of medical education in this country we find that this value of a correct educational foundation for the medical superstructure was thoroughly appreciated. The first medical school was founded in Philadelphia in 1765 in connection with what is now the University of Pennsylvania. According to the conditions imposed*, "The college was to confer two degrees in medicine, the bachelors and the doctors. As to the former it was presumed that the candidate should show efficiency in the natural sciences and in Latin, and that during his studies he should attend at least one course of lectures in anatomy, materia medica, chemistry, the theory and practice of physic, and one course of clinical lectures, and should attend the practice of the Pennsylvania Hospital one year, after which he should be admitted to the bachelor's degree. It further provided that he must also have served an apprenticeship with some physician. To attain the doctor's degree the candidate was required to wait three years and write and defend a thesis."

The second medical school followed in New York very soon after, being founded in connection with King's College, subsequently to become Columbia University. Both schools laid stress upon the possession of a broad, liberal education—as broad as could be had for those days—and both recognized the necessity of association and control of professional education by the highest representative of general education then existing—the college.

But the good beginning did not insure its good continuing. The anxiety, turmoil and final exultation, accompanying the Revolutionary War and the organization of the victorious colonies into a nation, unsettled educational traditions as it did social and political conditions. Not long after the achievement of our national independence, medical schools began to multiply in all parts of the country. From the establishment of the first medical school in Philadelphia to the present time more than 425 different medical schools have opened their doors in this country for a longer or shorter life. That there was ever the slightest necessity, or even excuse, for this number, no intelligent person will for the moment admit. It is true that the increase in population during this period was phenomenal, from about 3,000,000 to more than 90,000,000, but the increase of medical schools and of medical men was vastly out of proportion to the population to be served. How much in excess of rational demand the medical educational system was, suffice it to be said that in 1904, which represents the banner year in number of medical schools, there were 166, or one more than in all the rest of the civilized world put together. The number of students enrolled in these 166 schools was 28,142. Schools sprang into existence with little regard to educational connections, and with less regard to educational standards. The greater number of them were purely private enterprises—mere schemes under the pretense of medical education of making money for their promoters—their faculties. Commercialism and not the good of either the community or the profession of medicine was the actuating motive of their founders. That the educational system and its products had inbred the faults and not the virtues of the early schools of the country was but too evident. Not until the excessive ouput of the system began to overcrowd the opportunity of those already struggling for a living, did the rank and file of the profession begin to awake to the fact that they, after all, were responsible for the conditions threatening to overwhelm them.

This awakening was a slow and almost painful one. It can hardly be said that the rank and file are yet fully awake to their real obligations and responsibilities to medical education. One still hears of the good and excellent men who received their degrees from purely mercenary proprietary

*C. J. Blake, Collaboration in Medical Education.

institutions that were called medical schools. The loud-voiced resentment with which the Carnegie Foundation's Report on Medical Education in the United States was received by the larger number of medical schools and their graduates is still fresh in the recollections of us all. Notwithstanding that some of the schools held up to public condemnation by this report could boast among their graduates some of the foremost names in the medical profession, the truth of the indictments has now been generally admitted—even many of the then condemned schools are today taking the flattering unction to their souls that they comply in this present day of grace with all the requirements and recommendations of this once denounced traducer of their good names. And here the fact should be impressed that the standard of the medical profession cannot be judged by its leaders, but must be judged by that of the general average of the rank and file. The good schools have had their failures and the poor schools have had their successes; but the good schools have had more successes and fewer failures, and the poor schools have had more failures and fewer successes. The horse makes no greater effort in jumping the fence than to clear the topmost rail. The average student but complies with the average requirement of his school; but the student of ability and energy will rise anywhere and under all conditions—he will rise in spite of his school and his environment. It is a noteworthy fact that for years the leaders in the medical profession have been calling to their brethren in the ranks to remedy the conditions that have been so long a discredit to medical education and to the profession. The distance between the leaders and the men in the ranks is too great; the ranks are far in the rear of the leaders. We cannot correct the past in this respect, but we can see to it that this distance be closed up in the present and the future by advancing the position of the ranks—and there is but one way apparent by which this can be accomplished, and that is by such thorough and exacting education that the intellectually unfit will not gain admission to the profession.

The responsibility of the medical profession in respect to medical education is not solely to the profession itself, but is, if anything, more to the community, which gets its estimate, its impressions, and its ideals of medicine from the work, activity and education of the profession in its midst. A survey of our present medical schools shows two facts—that we have some of the best schools in the world, schools of the highest grade and conducted on the best educational principles known—schools that are without superiors anywhere; and secondly, that side by side with the best, we have the poorest to be found in the universe. Between these extremes we have all gradations. In this respect we contrast strongly with European conditions, where but one standard prevails, and that the best.

Today, in the estimation of the public, the degree of doctor of medicine is the same whether it be conferred by the highest or the lowest type of schools in the category. The graduate of the school devoid of the most elementary essentials of a medical college stands in the eyes of the community, upon the same plane of professional equality with the graduate of the school possessed of all the facilities and powers for thorough education, and which rigidly exacts of its graduates compliance with all its requirements in both theoretical and practical knowledge. It is to the fact that we have not discriminated among ourselves in this matter that we must attribute the popular estimate of our profession we find prevailing in our midst. To it we can look to the prevalence of sectarianism in medicine, the charlatan, the faith curist, the pathist and the quack of every kind and description. Truly as we have sown so have we reaped. As charity begins first at home, so should education. We must educate ourselves to the duties and obligations we owe to our profession, to the community, and to the state, and when we have done so we shall find state, community and profession responsive and in harmony and cordial cooperation.

How many of us here, looking back on our own educational equipment, when we received the diploma conferring upon us the degree of doctor of medicine, as with all its rights and privileges, so with all the obligations appertaining thereto, can do so with a feeling of satisfaction. We went out, many of us, with no more educational and ethical right to practice medicine than we had legal right to engage in crime. What did we do? We gained our educational right by our own endeavors on our unsuspecting and confiding patients. This was not right then and we knew it, and it is not right now and we know it. Now what are we going to do about it? I hope much, I hope we are going to see that from now on there shall be but one standard of medical education in the country—and that the best. That before long there shall be no such thing as Class A plus, Class A, Class B and Class C medical schools, but they all shall be Class A plus.

The importance of correct educational training

is more imperative in medicine than in any other profession. The intimate nature of the relations between the physician and his patient call for the highest ideals and conceptions of duty and ethics; but the obligations of duty and ethics are not intuitive, only in the most elemenary and primitive exigencies will intuition serve us. In the complex of life, in its personal, private and communal activities, relations and responsibilities, we must rely upon and be guided by a cultivated intelligence and an educated and trained reason. We seek this in the demand for a broad, cultural foundation as a prerequisite for the beginning of professional study; but we must not presume that the prerequisite culture will be strong enough of itself to carry the student through the curriculum of study and his subsequent professional life; throughout his course of training and preparation the ethics and obligations of his professional duties must be emphasized by precept and, more, by example. In the professional and scientific preparation, again, the paramount importance of correct training obtains equally, and if anything more so than, with that of ethical education.

There is a directness of purpose and a remarkable imperativeness of demand in the doctor's work not found in that of the other professions. The engineer in his constructive operations has a wide field of option in design, materials, strength and even durability of the structure to be erected; he may experiment beforehand and by repeated tests assure himself of the success of his plans. The lawyer can plead his cases at his convenience and after he has consulted all the authorities and precedents he may desire; and if he loses by oversight or mistake on his part, he can obtain a retrial and profit in his second effort by the experience gained in his first. On the other hand, the doctor has no choice except to treat or not to treat; the condition is before him and is inflexible; the demand is insistent and usually immediate; and then and there he must do that which is best for his patient—knowing full well if he makes a mistake unfortunately there is little consolation to either patient or doctor; his knowledge and his ability must be ready for instant service, and the time and the circumstances of his patient are infrequently sufficient to permit him to avail himself of the counsel of his confreres. Again, the work of the engineer is open to criticism and test by other engineers and his competency in his profession can be correctly appraised. The lawyer must prove his ability and the validity of his clients' contention against another lawyer hired to prove the contrary. But the physician has no check upon his work. No one follows after him to prove or disprove his judgment or his treatment. He judges and he treats ex cathedra; and he stands with respect to his patient daily between the here and the hereafter. How important, therefore, that both judgment and treatment be correct. For the patient and the community this is more imperative than for the doctor—the patient and the community suffer because of his mistakes, because of his want of training, of education, of experience, of enlightened judgment. Because of this, the community has the right to demand that whoever shall offer himself as competent to care for the health and lives of its members shall be truly competent so far as human prevision can determine; and education as determined by the compliance with the formalities and tests of the best recognized usages and customs becomes the primary criterion of this judgment.

The doctor works under supervision and criticism only while a student. It is then that he must be taught the right methods; it is then only that his work is subjected to that merciless criticism of both teacher and fellow students so necessary to impress and establish correct mental and scientific habits and ideals; to give that direction and impulse that is to determine the future educational and scientific trajectory of his professional career. Today of all education, medical education is the most expensive, both as measured in dollars and cents and in time and effort expended. Medicine can be learned only by doing —the eye, the ear, the hand, the intellect, must be brought into daily use with the things to be learned, to be comprehended, to be done. Expensive laboratories are required, hospitals still more expensive are indispensable, and trained and experienced teachers are necessary. The tuition fees of the students cannot today meet the required expenses of medical education. Schools that depend for their existence upon the income from student fees cannot measure up to their obligations to the student and to the community that present day knowledge demands to be satisfied. No man has the right to offer himself as custodian of the health and life of his fellowman who has not had available and availed himself of all the facilities for acquiring knowledge, power, and discernment of the conditions he will be called upon to treat. No man today should be permitted to go into the practice of medicine who has not passed a full year's residence experience in a modern hospital and under strict supervision by an experienced hospital staff. To permit otherwise is to fail to place the keystone in the pro-

fessional educational arch. All these truths the medical profession must make known to the public.

Much has been done to improve conditions in the last ten years. Since 1904, with its 166 schools and its 28,142 students, with only four schools requiring any educational requirement in advance of a high school education, and the greater number not that, to the present, with its 117 schools and 18,412 students, with 30 schools now requiring two or more years of collegiate education before admission, and with the fiat that all Class A schools must after January 1, 1914, demand for admission at least one year of college work as a prerequisite for the study of medicine, there is unmistakable evidence of progress and an awakening to our responsibilities. But much remains to be done. Medical science is not at a standstill—on the contrary it is going forward with an accelerating velocity. This means that the future preparation, facilities, requirements and equipments for properly training and teaching the future students of medicine will necessarily increase with the progress of knowledge.

Medicine is assuming rapidly a position in the sociological economy that is extending it outside the field of purely private and personal concern. The value of medicine is today of more import to the community than the healing of disease and injury. The knowledge of the etiology of disease is pointing the way to its prevention as the future chief concern of medicine and the medical profession; physiological research is foreshadowing the potential coming of an improved physical and intellectual population; pathology is showing that the burden of the unfit, the defective, the degenerate and the insane can be avoided; hygiene is telling us that the scourges of typhoid, malaria, tuberculosis and venereal diseases are suffered simply because we as a community will to suffer them. And why? Solely because we are not educated as a community and as a profession to avail ourselves of what is already at our hands awaiting our putting them forth to grasp and use.

THE REGULATION AND SANITATION OF PRISONS.*

By W. H. Oates, B. Sc., M. D.,
Montgomery, Ala.

One of the most hopeful signs of the time is that spirit of helpful sympathy for the unfortunate which now pervades society, and manifests itself in many ways.

It is an unfailing evidence of a truly advancing civilization that the happy, the fortunate, the strong feel a sense of responsibility for the miserable, the oppressed, the weak.

It is not only a doctrine of religious faith, but the theory of the brotherhood of man is an inflexible law of social progress.

The chain is no stronger than its weakest link, the fleet no faster than its slowest ship, and with equal truth it may be said that the whole social fabric is affected by the condition of its most miserable individual unit.

These general and trite observations are pertinent to the subject in hand, because the jails are an integral part of the whole penal system whereby society endeavors to protect itself from the aggressions of those who show disregard for individual and public rights, and the regulation and sanitation of jails can be on no higher plane than the general administration of its other features, and the proper and enlightened treatment of this subject by the State cannot but result in a general elevation of the whole.

Our penal system is an anachronism, a survival from a barbaric age. In its theory it is beautifully adopted to the end sought, but in its practical administration it is absolutely destructive of that desired result. In theory a man convicted of crime is imprisoned, not because the State hates him, not in a spirit of revenge, or retaliation, but simply because he shows by committing crimes that it is not safe for others that he be allowed to mingle with them. It is not safe to allow a murderer at large, because he might take other lives; a thief must be confined because at liberty the property of others would be subject to his attack. Logically, therefore, it would follow that if he is ever released it must be only when those impulses which induced him to commit the crime have been corrected. Therefore, the period of imprisonment ought to be devoted to physical regeneration, intellectual development and moral instruction. Otherwise the whole purpose of the original imprisonment is lost. Society is not entitled to protection against a thief for a term of years for which he may be sentenced only; it is entitled to be protected against him for all time. So, how futile it is to say to a man: "You are a thief; therefore, to protect others you must be put where you cannot steal; for ten years you will associate with other thieves, deprived of all the sweet, elevating influences of life, suffer indignities which will make you hate the law, and finally turned

*Read at annual meeting of the Medical Association of the State of Alabama, Mobile, April 15, 1913.

out as much an enemy of society as the law can make you."

Of course his punishment may deter some few from crime, may even in isolated cases work a reformation, but in the vast majority of instances society has fashioned a warier, deadlier, more efficient enemy. Society can never gain anything by the humiliation and degradation of any of its members. It must gain much by the elevation and instruction of any of them. The existence of public schools and churches is a recognition of this fact. The inevitable conclusion must be that the greater the need, the greater must be the correcting influences.

If a normally good child should have instruction at the expense of the State that he may grow up a good and useful citizen, how much more effort should the State make that a bad one may also develop into a recognition of his social duties.

Under the present system a convict is worked to produce revenue; for the time being he is an animal, a beast of burden, a slave. His moral and intellectual faculties being unexercised, atrophy and die. His physical subjection to another is calculated to destroy every vestige of self-respect, and in some respects even worse. The places in which he is confined are so insanitary that his sentence of imprisonment is really a sentence of death. No enlightened people would tolerate a law which provided that as a punishment for larceny a thief should be inoculated with the germs of tuberculosis or typhoid.

A righteous indignation would sweep it from the books. And yet, in far too many cases that is what really happens. As a punishment for crime a man is sentenced to be confined under such circumstances and in such places that his chances of contracting fatal diseases are vastly increased. When, on such account, he does become a victim, the fact is that the law made him a consumptive as a punishment for stealing, it may be, not more than twenty-five dollars.

It is, therefore, a pressing duty which the sacred obligations of a common humanity impose upon every citizen that it must be seen to; that men who, though criminals, are human beings, who, more tempted, perhaps, less fortunate, less strong than we, are still moved by the same emotions and suffer in the same flesh. Of each of them it may be said, no matter to what morass of life his fate has brought him, to whatsoever red guilt, as Carlyle in his incomparable story of Charlotte Corday said of Morat: "For he, too, had human affections, a brother and sisters, and was wrapped in swaddling clothes and slept safe in a cradle like any of us."

It needs no argument, I think, to establish the duty resting upon the State to at least conserve the physical welfare of convicts; the other must follow. There only remains to be discussed the manner in which it shall be carried out.

It is particularly pressing that jails should be properly regulated, for they rarely hold convicts. Generally their inmates are persons awaiting trial, many of whom are innocent, many of whom are never convicted at all.

These prisons must be secure, of course. They may also be healthful and pleasant. They should in all cases be so constructed that sunlight and fresh air may be freely admitted.

Sunlight is an universal germicide and fresh air is its invaluable ally. Each jail should also contain a space in which daily and compulsory exercise in the open air may be had. An abundant supply of fresh, uncontaminated drinking and bathing water is an essential, and frequent baths should be required.

The food furnished should be ample, nourishing and well prepared, and in sufficient variety. The food elements recognized by science as neccessary should be required to be present in proper proporitions in all meals.

There should be a jailer or warden in the building at all hours, with some proper instrumentality by which the prisoners may arouse him at night in case of fire, escapes or illness, and there should be, at reasonable intervals, a medical examination of each prisoner. Many diseases which are difficult in advanced stages yield readily to treatment in incipiency. There should also be a hospital department, with proper accessories, to which the sick could be removed.

The building should be as near fireproof as possible, but apparati for extinguishing fire should be in readiness at all times and frequently tested and inspected, and all cells should be so arranged that they could be simultaneously unlocked in case of fire.

Idleness of mind is always the fertile breeding ground of crime, and much viciousness of thought and degeneration would be avoided by the use of a small prison library of well selected books, suitable to the intelligence of the occupants.

These suggestions will be derided by many, but the day is fortunately fast coming when the criminal instinct will be recognized as conclusive of some abnormality of mind, which treatment, educational or otherwise, will remove.

It is not unusual to hear from convicts the statement: "I never had a chance." We have

not yet reached that golden age when every citizen of this great nation will have a chance, but we can at least hasten the day when the unfortunate upon whom the State lays its correcting hand will have a chance to be stronger, better, cleaner than upon entering the punitive confinement.

When that day comes, the public good, which the law exists alone to secure, will find that it is in receipt of a more valuable revenue in human character than is the financial return that is bought with the sufferings, the lives, and, it may be, even the souls of brother men.

BOOK REVIEWS

The Diseases of Children.

By Henry Enos Tuley, M.D., Louisville, Ky. One hundred and six engravings and three colored plates. Second revised edition; 684 pages. Price, $5.50 net. St. Louis: C. V. Mosby Co.; 1913.

This monumental work by an eminent author may be considered the last word on pediatrics up to date. Prof. Tuley is so widely and favorably known through his work in the University of Louisville, his efficient services in various hospitals and his connection with leading medical and health organizations that only superior work would be looked for at his hands. The reader will not be disappointed. The book is written in a practical style, suitable for the busy doctor as well as for the earnest student. The engravings are excellent and the colored plates, showing Kopliks spots, the life cycle of plasmodium virax, and tonsillar diphtheria and follicular tonsillitis are equivalent to clinical demonstrations.

The book is divided into chapters of moderate length, each devoted to one particular subject. Particularly valuable are those concerning "Diseases and Injuries of the New Born," "Therapeutics of Infancy and Children," "Infant Feeding," "Nutritional Disorders" and "Diseases of the Nervous System."

Also the chapter on "Diseases of the Ear."

Prof. Tuley is to be congratulated upon his achievement. His book is already one of the leading text books on this subject in many schools of medicine, and is destined to continue long in its usefulness.

The Art of Medicine.

And Other Addresses, Papers, etc., by Isadore Dyer, Ph.B., M.D., New Orleans. T. A. Majors Co., New Orleans, publishers. Price, $2.00 net.

Dr. Isadore Dyer is one of the few writers and speakers whose productions have a continued value beyond the special occasion of their preparation. His addresses and essays are so pertinent, so entertaining and so neatly phrased that it would be to defraud the profession of many literary gems were they to be permitted to disappear in oblivion.

Therefore, this little book of some two hundred pages, containing twenty-four productions of his pen affords an opportunity to thousands to enjoy the brilliant essays and poems so characteristic of this Holmes of the South. The articles are not altogether medical in character. Rather do they represent the views of a broad scholarship, tinted by a medical education and experience. Only when speaking of leprosy, concerning which he is one of the highest living authorities, are the medical expressions most prominent. No Southern doctor who enjoys good literature will regret adding this little volume to the center-table in his waiting room.

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Next Meeting, Lexington, Ky., November 18, 19, 20, 1913

EDITORIAL DEPARTMENT

THE LEXINGTON MEETING OF THE SOUTHERN MEDICAL ASSOCIATION.

The Secretary desires to announce that the section officers have sent in their completed programs and the members of the Southern Medical Association may look forward to a delightful and profitable meeting in November. The Lexington physicians are active in preparations for the meeting and there can be no question but that Lexington is one of the most interesting cities in the entire South for medical men to visit. Lexington, as the seat of the Transylvania Medical School, was one of the earliest medical centers in the South, and the history and traditions of the Dudleys, McDowell, Bush and other pioneers in medicine and surgery who lived in that locality will prove of great interest to Southern physicians. While Lexington can boast of a brilliant record for her physicians for the past century, she has every reason to be proud of her medical profession of today, because no city in the country has better or more progressive men in all lines of work than is found in the "queen city of the blue grass region of Kentucky."

The November number will be a Special Lexington Number. It will contain a brief review of some of the attractions of Lexington and its environs and in it will be pub-

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of Southern Medical Journal, published monthly at Nashville, Tennessee, as required by the Act of August 24, 1912:

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C. P. LORANZ, Business Manager.

Sworn to and subscribed before me this 22d day of September, 1913.

(Seal) DELLA J. PURIFOY, Notary Public.
(My commission expires May, 1914.)

lished the completed program of the meeting. This number will be widely distributed and will be of particular interest to the members of the Southern Medical Association and to others who are interested in organized medicine.

Several special trains are being arranged for. It will be well for the men from the various states to discuss the subject of special trains or at least special sleepers from their state going direct to Lexington.

Mention has before been made of the splendid hotel accommodations of Lexington and it may be advisable to add that the railroad facilities are equally good. Most of the great trunk lines in the South have railroads entering Lexington, and those who have not have favorable connections. All Southern railroads will lead to Lexington in November.

THE SPECIAL TRAIN FROM MEMPHIS TO LEXINGTON.

DEAR DOCTOR: The Illinois Central Railroad is arranging a special train out of Memphis, leaving on the afternoon of November 17, for the convenience of physicians who expect to attend the Southern Medical Association, which meets in Lexington, Ky., November 18-20. The train will be composed of diner, sleeping and observation cars. The train will reach Lexington on the morning of November 18 in time for the first session.

From all indications, the next meeting of the Southern Medical Association will be a banner one. Now, Doctor, make your arrangements and join us.

If you wish any further information, you may write Mr. E. C. Newman, City Ticket Agent, I. C. R. R., Memphis, Tenn.

Very truly yours,

FRANK A. JONES, *President.*

DR. SAMBON VISITS AMERICA.

Dr. Louis W. Sambon, of London, England, by special invitation, came to America to visit the Thompson McFaddin Pellagra Commission, for the purpose of investigating the pellagra situation in the United States. Dr. Sambon for a number of years has devoted himself to the investigation of the cause of pellagra, and, as is well known, he advanced a theory, based on his research work, of the transmission of the disease by the simulium reptans. The presence of such a distinguished scientist will gladly aid the work of the Pellagra Commission.

Dr. Sambon has been invited to lead the discussion on Pellagra at the Lexington meeting of the Southern Medical Association.

PELLAGRA CONFERENCE.

The Thompson-McFaddin Pellagra Commission held a most noteworthy meeting in Spartanburg, S. C., September 3, 1913, as guests of the Spartanburg County Medical Society. The meeting, which was devoted entirely to the discussion of pellagra, was well attended by many of the most prominent men of the profession and representative laymen. After the work of the conference had been finished the evening was spent at an informal smoker given by the Spartanburg County Medical Society.

It will be remembered that this commission was organized to make research investigations of pellagra in the United States by reason of certain funds donated by Col. Robert M. Thompson, of New York, and J. H. McFaddin, of Philadelphia. The commission was constituted as follows: Capt. J. F. Siler, medical corps of the U. S. A.; Past Assistant Surgeon U. S. N.; Dr. W. J. McNeal, professor of bacteriology and pathology of the New York Post Graduate Medical School. The work was divided among many prominent investigators, and the report of the work done was presented at this meeting.

Dr. H. N. Snyder, President of Wofford College, delivered the address of welcome, and he spoke in terms of the highest praise and appreciation of the humanitarian work of the profession all over the world. The basis of

his remarks was preventive medicine, which, he said, was the cry of the new medicine.

Dr. Louis W. Sambon, of London, England, was introduced by Dr. J. W. Babcock, head of the State Asylum for the Insane, as the guest of honor and the speaker of the occasion. Dr. Sambon spoke of the importance of this investigation and praised the work of the commission for the work accomplished. Instead of speaking of his own work, Dr. Sambon said, "a more fitting subject would have been my appreciation of the work you have done in this country, and more particularly the work that has been carried on with so much thoroughness and competence by the Thompson-McFaddin Commission. The work done by this commission is the very kind of work that is needed, and its extension to other places would no doubt greatly accelerate the elucidation of the disease, a theory which cannot be expected by any amount of academic discussion." He spoke of his Italian investigations and his association with Capt. Siler, now active in the Pellagra Commission of the United States. In discussing the transmission of pellagra, he said that in 1905 he had been bold to express his belief that pellagra was not a food-borne disease, but was probably a disease caused by a parasite, and that the transmitting agent was probably the simulium reptans, a buffalo gnat. He observed that the disease was more prevalent among the women and children than the men, and particularly among those poorly nourished individuals of the cotton mill districts. In a small island near Vienna he found a community with a umber of pellagrins, but nearly every one was a male. As to its being contagious, he said that individuals suffering with the disease in one locality may rid themselves of the disease, very frequently by moving into communities where there was no pellagra. Likewise, he had observed families free from the disease, moving into communities where the disease was prevalent, manifest the disease within two weeks. The general opinion at present is against the contagiousness of the disease.

At the conclusion of Dr. Sambon's address he and Dr. Snyder were voted honorary members of the Spartanburg County Medical Society.

There was then a general discussion, participated in by many of those active in the pellagra investigation. Dr. Roberts, of Atlanta, spoke of the possible protozoan origin of pellagra. Dr. W. B. Houston, of North Carolina, a dentist, read a paper in which he mentioned the effects certain acids derived from decaying teeth had on the stomach and suggested this as a possible cause of pellagra.

Dr. W. J. McNeal, of the Pellagra Commission, submitted the report of the investigation thus far, which is summarized as follows:

"1. The supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by our studies.

"2. Pellagra is in all probability a special infectious disease communicable from person to person by means at present unknown.

"3. We have discovered no evidence incriminating flies of the genus simulium in the causation of pellagra. If it is distributed by a blood-sucking insect, the stomozys calcutrous would appear to be the most probable carrier.

"4. We are inclined to regard intimate association in the household and the contamination of food with the excretions of pellagrins as possible modes of the distribution of the disease.

"5. No specific cause of pellagra has been recognized."

The Spartanburg County Medical Society is to be congratulated upon the success of the conference, not only for the eventful meeting of a body of eminent scientists, but also for the entertainment of the guests.

SEVENTEENTH INTERNATIONAL MEDICAL CONGRESS.

A report to the SOUTHERN MEDICAL JOURNAL by a member in attendance indicates that the meeting of the Seventeenth International Medical Congress, held in London from

August 6 to 12, was one of the most wonderful in its history by reason of the masterly addresses and papers read, the unprecedented attendance of nearly 8,000 members, and the magnificent entertainment and reception provided. Each nation was represented on the platform at the initial meeting and Dr. W. S. Thayer, of Baltimore, a member of the Southern Medical Association, was presented as the representative from the United States. Dr. Harvey Cushing delivered the address on Surgery, which was generally acclaimed a most masterful production. Dr. Rudolph Matas, of New Orleans, presented a paper on "Vascular Surgery." In one of the addresses Dr. Matas was referred to as "one of the great epoch makers of vascular surgery." Dr. J. A. Witherspoon, President of the American Medical Association, was also present. Another of the South's representatives was Dr. W. W. Harper, of Selma, Ala., and a very active member at the Congress. Dr. Harper will continue to do special study at the University of Edinburgh during the month of September.

DR. GRAHAM HENSON'S BOOK ON MALARIA.*

Many books and monographs have been published on this great enemy of the South, but among them there has never appeared one more authoritative or more carefully prepared. It is very gratifying that such a work, intended primarily for the South, has been written by one of the South's most prominent physicians. This work will be widely received, because it meets a distinct demand, furnishing information that will be of the greatest usefulness in preventing and in treating malaria. Dr. C. C. Bass has written an interesting introduction to the text.

In the general considerations, we find a historical study, the geographical distribution, the economic loss, etc., from the prevalence of malaria. Under etiology, after the classifications of the organisms, descriptions of the mosquitoes, etc., there is presented for the first time in a text-book form, a detailed description of that wonderful work of Bass, in cultivating the malarial plasmodium. Likewise he presents the pathology, diagnosis, symptomatology of the disease.

Under prophylaxis, he describes (1) measures directed against the plasmodium; (2) measures directed against the mosquito; (3) mechanical means to prevent the mosquito from gaining access to man; and (4) the education of the public on all measures for the control and prevention of the disease. The author's own method of treating malaria is very easy to comprehend, and no doubt will be found efficacious in the hands of other clinicians.

This book reflects great credit on the author, on the South, and also on the Southern Medical Association, for Dr. Henson is one of the pioneer workers in effecting its present organization and wonderful growth. We heartily commend this book to the profession.

*"Malaria." By Graham E. Henson, M.D. 190 pages, 27 illustrations. Price $2.50. The C. V. Mosby Co., St. Louis.

EPIDEMIC CEREBRO-SPINAL MENINGITIS.

The appearance of cerebro-spinal meningitis, the dreaded "spotted fever," in any community arouses very justifiable alarm. Its excrutiating pain, fatal results, or if death is averted, the maiming of various functions of the body are truly terrifying. Fortunately modern science has placed in our hands the weapons of precision which enable us to meet such an invasion with confidence that its ravages may be limited and the epidemic promptly "stamped out."

The specific anti-meningitic serum now available is almost an infallible remedy if applied in time, but certain adjuncts to its use are very necessary. An article by Dr. R. H. von Ezdorf, U. S. Public Health Service, and Professor of Tropical Medicine in the School

of Medicine of the University of Alabama, published by the Government Printing Office at Washington, affords probably the most condensed and practical guide to the management of such an epidemic. It is "Reprint No. 124 from Public Health Reports, May 19, 1913," and it will repay any Southern physician to send to Washington for a copy, costing only five cents. A brief epitome of the article would present the following important features to be complied with or noted:

1. Every suspected case should be promptly reported to the health officials.

2. Health offices should make full records of all cases in detail.

3. Suspected cases should be promptly isolated and the houses placarded.

4. Free isolation hospitals should be provided.

5. Cases treated at home must be isolated from all but the necessary attendants.

6. Free dispensaries should be provided for observation of those who are exposed.

7. A supply of the specific serum should be instantly available.

8. There should be established a board of competent physicians for purposes of inspection and diagnosis.

9. Public gatherings of all kinds, attendance at funerals, crowding of street cars, theaters or shows all should be discouraged, and avoided as far as possible.

10. There should be a well-equipped and served laboratory for examining spinal fluids and nasal discharges.

11. Modern, sanitary schools need not close, but no child at all indisposed should attend. Children are more susceptible than adults, and colored people than whites.

Many people carry the germs in their nasal secretions without knowing it, wherefore it is well to avoid all demonstrations of affection, such as embracing, kissing, etc. Heat, dry air and sunlight destroy the germs. Keep the nasal passages clean.

The above sentences, elaborated and put into effect, will enable any community afflicted with this terrible disease to eradicate it in a short time.

Dr. von Ezdorf has done his fellow-citizens a valuable service in placing this subject before them in such a clear, forceful and practical shape.

REVISION OF THE U. S. PHARMACOPOEIA.

Recently Dr. O. T. Osborne, Yale Medical School, a member of the Pharmacopoeial Revision Committee, has criticized in a general way the methods that are being followed in revising the Pharmacopoeia, and, in particular, has taken exception to the readmission to the next Pharmacopoeia of superfluous or worthless drugs. While most physicians probably know in a general way that the Pharmacopoeia has in the past contained some worthless and obsolete drugs, few have taken the trouble to examine the book critically. However, if physicians will examine the present Pharmacopoeia they will find that very, very many drugs and preparations described in the book are generally conceded to be worthless. If they will then consider that most of these drugs are to be perpetuated in the next Pharmacopoeia, and if they will further bear in mind, that being retained in the Pharmacopoeia for another ten years, writers of text books will be constrained to discuss them, teachers to discourse on them and physicians to use them, they will endorse, most cordially, Dr. Osborne's protest.

The following resolution (Jour. A. M. A., June 28, 1913, p. 2086) adopted, at the request of the Section on Pharmacology, by the A. M. A. House of Delegates at the recent meeting of the A. M. A. at Minneapolis, brings out the fact that the Revision Committee is composed of pharmacists in largely predominating numbers, and that these believe that as many drugs as possible should be officialized:

"WHEREAS, It is desirable that the articles officialized by the Pharmacopoeia of the

United States should reflect the progress of therapeutics; and

"WHEREAS, Therefore the inclusion of articles in the Pharmacopoeia now in progress of revision should be determined by their therapeutic merit; and

"WHEREAS, The decision of therapeutic questions should logically and in fairness be left mainly to the medical members of the Revision Committee; therefore be it

"Resolved, That the section request the House of Delegates of the American Medical Association to urge on the Committee of Revision of the Pharmacopoeia of the United States that the selection of articles to be included be left to the Committee on Scope, in which the medical profession has a majority representation, rather than to the Executive Committee, which represents mainly the pharmaceutical profession, and which has overridden half the changes advocated by the Committee on Scope."

While the official protest of the medical profession may or may not be heeded by the Revision Committee, in the meantime the resolution should serve to impress on physicians that the recognition of a drug in the Pharmacopoeia is not, by any means, a sign that the drug is one of value or even an indication that it possesses any therapeutic properties whatever.

DEPARTMENT OF AGRICULTURE ADVISES THAT MILK BE PASTEURIZED AT LOW TEMPERATURES.

In order to determine the best way of pasteurizing milk so as to kill the disease germs and yet not give the milk a cooked flavor or lessen its nutritive value, the Department of Agriculture, through its Dairy Division, has been conducting a series of experiments, treating milk at different temperatures and for different lengths of time. According to the report on these experiments in Bulletin 166 of the Bureau of Animal Industry, when milk is pasteurized at 145 degrees F. for thirty minutes the chemical changes are so slight that it is unlikely that the protein (muscle building element) or the phosphates of lime and magnesia are rendered less digestible than they are in raw milk.

Moreover, from a bacteriological standpoint, pasteurizing at low temperatures is found to be more satisfactory than pasteurizing at high temperatures. According to Bulletins 126 and 161, where low temperatures are used the majority of bacteria that survive are lactic acid organisms which play an important part in the normal souring of milk. When milk is efficiently pasteurized at high temperatures, the bacteria which survive are largely of the putrefactive kinds, and milk so treated if kept for any length of time has a tendency to rot instead of sour. From the standpoint of economy, the technologist of the Dairy Division finds that pasteuring at low temperatures calls for less heat. It is found that it takes about 23½ per cent less heat to raise milk to the temperature of 145 degrees F. than to a temperature of 165 degrees F. A similar gain is a saving of the ice needed, because it will require 23½ per cent more refrigeration to cool milk to the shipping point when it is pasteurized at the higher temperature. The department, therefore, recommends that "when market milk is pasteurized it should be heated to about 145 degrees F. and held at that temperature for thirty minutes."

A DEVOTED HUMANITARIAN.

There lives a man whose great heart has been touched by the suffering and neglect he has seen meted out to crippled and deformed children whose natural guardians are unable to provide the skilled treatment and protracted care and attention in which alone reside their chance of escape from a life of hopless misery.

All over our country he has seen, in his travels, thousands of young victims of injury or disease accepting their hard fate in mute despair. The amount of such suffering has so

impressed him that he has consecrated his life to its relief. It seems as though he constantly hears and heeds the injunction, "Suffer little children to come unto me." So he has gone from state to state urging the establishment in each commonwealth of a free hospital equipped with all the orthopedic and surgical apparatus, all the professional and nursing skill available in this wonderful age, and at the service of the helpless ones. His name is George Washington Sweney and his home is at Marion, Ohio. His plan is nation wide, involving the expenditure of one dollar for every citizen of the United States, or over $90,000,000. As for him, he contributes as his share, himself and all of which he is capable.

No more worthy object ever commanded the utter devotion of any man, and he meets with approval and encouragement wherever he goes.

DEATHS FROM POISON.

Every few days the papers announce the accidental or suicidal death of some one from taking poison which was conveniently at hand. These deaths are rarely from narcotic poisoning. The law makes it troublesome to procure such in any quantity without attracting undesirable attention. The purchase of strychnine or arsenious acid must also be explained. But crude carbolic acid "for use about the water-closets," or the still more deadly "antiseptic tablets" containing overwhelmingly fatal amounts of corrosive sublimates, can be found in a very large percentage of urban American homes. Carbolic acid is seldom taken by accident, but the list of heart-breaking tragedies from the bichloride tablets mistaken for acetanilid, or soda, or, in the case of children, for candy, grows longer every year. The whole country has been shocked into sympathy and admiration this summer by the death of the banker in Macon, Ga., who swallowed the poison by mistake and discovered the error too late for his life to be saved, but, like Socrates, bravely watched and recorded his symptoms and sensations to the end. During the months of May and June several more deaths from the same cause occurred in the South. It is unfortunately true that our own profession is greatly responsible for this condition. When a doctor gives a woman a prescription for bichloride tablets to use for leucorrhoea, it is like handing a loaded pistol to one who does not know how to use it. Thousands of such pistols are in such inexperienced hands and do no damage, but once in a while tragedy results.

So when a box of bichloride tablets is on the sewing table, or the mantlepiece, with probably other boxes of like appearance scattered about, though in hundreds of such cases no accidents may occur, yet *some* one *some*where will be certain to suffer. The pity of it is that there is not the shadow of a necessity for any but druggists and physicians to touch either phenol or bichloride as disinfectants. Sulphate of iron, known as copperas, in lump or solution, is a cheaper and safer deodorizer than phenol, and if one were to swallow some it would promptly be vomited.

For douches there are other substances equally efficient and non-poisonous. One of the best is chinosol. This is not said because it is advertised in this JOURNAL, but because it is true. One 7½ grain tablet in a pint or more of warm water destroys all odor and diminishes the ordinary leucorrhoeal discharge, and if the patient were to drink the solution no harm would result.

Had such tablets been relied on in that bereaved Georgia home Mr. Walker would now be alive and well. Another preparation which is innocent and cheap is the "Alkaline Antiseptic Solution," sometimes sold at an outrageous price under the trade name "Glycothymolene." Druggists should sell it at not more than 25 cents per pint bottle, and every family should keep it on hand. Two teaspoonfuls of this Alkaline Antiseptic Solution in a teacupful of warm water, used to wash out the rectum after each dysenteric discharge, will afford

magical relief from tenesmus and often stop the attack. The same quantity in a pint of warm water is useful as a vaginal douche for purposes of cleanliness, but is not so good a deodorizer as some others, though quite efficient. But no matter what antiseptic or deodorizer we direct our patients to use, for the sake of human welfare let us stop placing in their hands those two unnecessary, deadly poisons, phenol and bichloride of mercury.

THE SERUM DIAGNOSIS OF PREGNANCY.

In the A. M. A. Journal, of June 21, Dr. Charles C. W. Judd, of Baltimore, has an article, entitled "Serum Diagnosis of Pregnancy." His technic is as follows:

A fresh placenta is boiled and reboiled until the water in which it is boiled is negative to a biuret test. Then the placenta is dried, or preserved in toluene for future use.

The apparatus used is, (1) a dialyzer, (2) glass containers for the dialyzers, (3) capillary pipettes, test tubes, and a Bunsen burner, (4) apparatus for procuring 6 c.c. of sterile blood from the vein of a patient, (5) reagents for doing the biuret test. The procedure of making the test, though it may seem simple and easy to those accustomed to such work, will not be generally employed by the general practitioner or obstetrician. They will follow the old road to a diagnosis. But there is a place for such a method of ascertaining the true condition in doubtful cases, and if the many sources of possible error can be eliminated it may prove very useful therein.

A LIVE COUNTY MEDICAL SOCIETY WITH A LIVE WIRE SECRETARY.

The Medical Society of Titus County, Texas, is to be congratulated on its secretary, Dr. W. H. Blythe. He is not contented with the mere performance of the duties pertaining to his office, but is constantly on the lookout for new means for adding to the interest felt by the members of the Titus County Medical Society, so as to insure their regular attendance, and to attract doctors who have not yet affiliated, and induce them to join the society. Largely through his influence and efforts every meeting is provided with entertaining and instructing features. He keeps in constant touch with all Titus County doctors through the mails, and on the outside of his envelopes he prints a message with some sort of a copying device. This message is in his own hand, and so is the whole program he promises, in pale blue, and is generally illustrated with an original drawing that suggests Mutt or Jeff, and a motto, such as: "Don't say, 'Doc, bring along your microbes, facts and theories,'" and so on. No wonder the society flourishes. If "a little leaven leavens the whole lump," such an inexhaustible bundle of energy and genius must result in keeping things moving. He sets a good example for the rest of us. We may not be able to copy his methods, but we *can* exert our energies and our intellects in such ways as seem to us most beneficial to our societies. It is an honor to be elected secretary of a Southern county medical society. The organization is composed of the foremost physicians, who are generally the most intelligent citizens. Their judgment in selecting their acting agent, the secretary, proclaims their confidence in his integrity and ability, and it behooves him to justify their action. Any one can sit behind a table and keep a memorandum and call it "the minutes of the last meeting," but when a secretary is loyal and earnest, like Dr. Blythe, he has a golden opportunity to show the profession the benefit they can receive from a *man* who is devoted to his profession and to the general welfare.

May such secretaries of medical societies multiply everywhere! There is a crying need for them in many counties, where ability slumbers awaiting the clarion call to action.

"THE MODERN HOSPITAL."

The September number marks the initial appearance of a new journal in a new field, namely, "The Modern Hospital." It is a journal of the size of the Journal of the American Medical Association, containing 68 pages of double columns, printed in a very elegant style, making a most attractive journal. The subscription price is $3.00 per annum. It is edited in Chicago, by Dr. Jno. A. Hornsby, author of several works on Hospital management, and is published and managed in St. Louis, by Dr. Otho F. Ball, editor of the Interstate Medicine. The object of the publication is "a monthly journal devoted to the Building, Equipment, and Administration of Hospitals, Sanatoriums, and allied institutions, and their Medical, Surgical and Nursing Services." It is apparently entering its field under the most encouraging conditions, and we bespeak for it the support and commendations of the profession.

CORRESPONDENCE

INTRA-NASAL TAMPONS.

Editor Southern Medical Journal:

Ordinarily I do not venture to take part in a discussion with specialists on the eye, ear and nose because I know of these things only enough to know that I ought to turn them over to a specialist as soon as possible before serious harm has come from mistreatment. But after reading in the Journal Dr. Manning's paper and Dr. Dowling's discussion (August, 1913) I am prompted to offer a suggestion as to the modus operandi of the argyrol introduced into the nose.

Dr. Manning says: "These tampons should first be saturated with an aqueous solution of argyrol, forty grains to the ounce. Through capillary attraction they will deplete the proximate soft tissues and drain the ethmoid cells and other sinuses."

Dr. Dowling says: "You may find a better explanation than I offer, and I hope that you may; but it is difficult to prove the anatomical relationship between the eye and the nose."

For fourteen years I have been using collargolum; the first five years only in the form of unguentum Crede, a 15 per cent ointment. Since then I have used collargolum in solution by the stomach and rectum also. This long experience teaches me that collargolum is taken up by the skin or mucous membrane and carried to the seat of the disease, there doing efficient work.

To illustrate: A case of septicaemia with a constant repetition of chills, high fevers and big sweats was somewhat relieved in twenty-four hours, markedly relieved in forty-eight hours and in seventy-two hours all other medication was discontinued, and the patient well in a week. The ear trouble from which the septicaemia originated was at this time well without local treatment.

Scarlet fever with inflamed glands in the neck markedly improved in twenty-four hours by the inunction of unguentum Crede into the back. Treatment from the beginning has prevented all secondary troubles, the disease being mitigated within twenty-four hours and very much shortened.

Many cases of tonsilitis practically cured in twelve to twenty-four hours by the introduction into the bowel of ten grains of collargolum in solution once or twice daily.

Infection of foot or hand with red streak running up the limb relieved generally within twenty-four hours by simply uncovering the wound and covering it and the surrounding reddened parts with unguentum Crede.

Two cases of left crural phlebitis promptly relieved and cured by rubbing the ointment into the right thigh.

Salpingitis, one acute case markedly relieved in one day and cured in three or four days by rubbing the ointment into the thigh of the same side.

Of puerperal infections, the only one in my own practice was relieved in a few hours by the inunction of unguentum Crede. Another case with chill, high fever, and severe pain in the left lower abdomen was practically cured in forty-eight hours by rubbing one dram of the ointment night and morning into first one thigh and then the other.

These statements to the uninitiated may sound like fairy tales, or he may conclude that I have adopted the second alternative given by the father

to his boy when starting out in life. He says: "My son, never tell a lie; but if you do tell one, tell it so big that nobody will believe you." I suspect that a great many hearing and reading what I have said on the subject have thought that I had adopted this second alternative. But I assure you that these statements are true, and that many more facts of a like nature could be shown exhibiting the activity of this medicine.

Now argyrol and collargolum are both soluble and absorbable silver preparations, and probably work in the same manner. That being the case, I would suggest that the argyrol is taken up by absorption from the nasal passage, and is carried by the lymphatics to the diseased eye and there does its work.

Directly after reading this paper and discussion I handed it to my specialist friend, Dr. R. B. Sellers, who was much interested in it. The night following the day on which he returned it I was called to see my sister, almost seventy-nine years old, who five years ago lost an eye from glaucoma. She told me that she felt she had the same trouble that put out her other eye, and was suffering intensely. It was some hours before I could get in touch with Dr. Sellers. In the meantime I gave her a hypodermic of morphine and hyoscine (this last was probably an error). I procured a 25 per cent solution of argyrol and tamponed the nose at once, probably not as well as a nose-ologist would have done it. Two drops of this solution was dropped into the eye, a part of which remained in the eye till Dr. Sellers opened it for examination at about 11 o'clock. This was about 9 o'clock. At half past eleven Dr. Sellers dropped two drops of a one per cent solution of eserine into the eye and directed its repetition every six hours. The next night he reduced it to three times a day, and after forty-eight hours more he reduced it to one drop twice a day. The nose has been tamponed once a day, the tampon remaining for an hour. She has been practically without pain since the first twenty-four hours, except following the administration of the eserine; the soreness around the eye has gone, and largely mitigated in the ball. Dr. S— thinks she is doing admirably.

On my own views alone, I would have used the argyrol for a greater length of time, but as I was following Drs. Manning and Dowling I thought best to follow them closely.

Respectfully submitted,

I. L. VAN LANDT, M.D.

Fort Worth, Tex., August 23, 1913.

REQUEST FOR HUMAN EMBRYOS.

The Southern Medical Journal:

We are calling upon the medical men of the South to help us make a collection of human embryos. Through the kindness of several men, in various parts of the country, a number of valuable specimens, ranging in age from three to seven weeks, are already at hand. The occasional ovum that you obtain in your private practice is the only source from which a collection large enough to be of any scientific service can be obtained.

The technical facilities we now have at our command for photographing, dissecting, sectioning and reconstructing embryological materials are such as will enable all concerned to derive the full benefit from the specimens. It is hoped that a careful study of the embryos will furnish information on the diseases of the ovum and uterus, as well as information on the normal development of the human embryo. Abortions and extra-uterine pregnancies relieved by operation are the chief sources of normal and pathological ova.

The early stages are especially desirable, but any specimens of less than three months' incubation or less than three and one-half inches from vertex to breech will be appreciated.

The specimens should be placed in a wide-mouth bottle containing a ten per cent solution of formaldehyde. The ovum should be handled carefully and should not be crowded or forced when it is placed in the bottle. The membranes should not be cut. The bottle then should be completely filled with the solution so as to exclude all air, securely corked, packed and sent by express, c. o. d. All essential clinical data should be appended.

We will be pleased to furnish descriptive notes of the embryos, information on special features, and in some cases, photographs. Address all materials and correspondence to

DRS. J. L. CAMPBELL AND J. W. PAPEZ.

Atlanta Medical College, corner Armstrong and Butler Streets, Atlanta, Ga.

BOOK REVIEWS.

Blood Pressure From the Clinical Standpoint.

By Francis Ashley Faught, M.D., of the Medico-Chirurgical College, Philadelphia. Octavo of 281 pages, illustrated. W. B. Saunders Company, Philadelphia and London, 1913. Price, $3.00 net.

The rapid increase in the past few years of attention paid to blood pressure in disease is but an evidence of its growing importance. To properly record and interpret the arterial pressure one must have a thorough understanding of the physiology and pathology of the cardio-vascular system. Such is included in the introductory chapters, and following this the author describes the uses of the various blood pressure apparatus, giving descriptions of the various conditions of the vascular system, and the blood pressure commonly found in each. It is a most excellent guide and manual on the use of the sphygmomanometer.

Heart Disease, Blood Pressure and the Nauheim Treatment.

By Louis Faugeres Bishop, M.D., A.M., Clinical Professor on Heart and Circulatory Diseases, Fordham University School of Medicine, New York City, etc. Fourth revised and enlarged edition, illustrated. Prices $3.00 net; by mail, $3.15. Funk & Wagnalls Company, publishers, New York.

The popularity and value of this little manual is proved by the demand for a fourth edition, which the author revises and enlarges in a very useful manner. A chapter has been added on the "Use and Construction of Blood Pressure Instruments." The description of the Nauheim treatment is a most acceptable feature.

Syphilis and the Nervous System.

By Dr. Max Nonne. Authorized translation from the Second Revised and Enlarged German Edition, by Charles R. Ball, B.A., M.D. 406 pages; 98 illustrations. 1913. Price, $4.00. J. B. Lippincott Company, Philadelphia.

Perhaps no more important work has appeared among the recent medical literature than this work by Dr. Nonne, translated by Dr. Ball. A great transition has been taking place in the subject of "Syphilis and the Nervous System," and a more accurate knowledge of the prevalence, pathology and treatment will certainly result from the new methods of diagnosis as presented by Nonne. These four methods, as described by the author, are: (1) Test for increase of globulin in the spinal fluid; (2) lymphocytosis in the spinal fluid; (3) Wasserman reaction of the spinal fluid; (4) Wasserman reaction of the blood serum. This exceptional work is of special value for the practitioner, neurologist and syphilologist.

The First Signs of Insanity.

By Bernard Hollander, M.D., M.R.C.S., Consulting Physician British Hospital of Mental Disorders and Brain Diseases, founder and president of Ethological Society, editor of Ethnological Journal, author of "The Mental Functions of the Brain," "The Mental Symptoms of Brain Diseases," etc. Cloth; 347 pages and index. $3.25 net; by mail, $3.37. Funk & Wagnalls Company, New York, publishers.

The author, realizing the great number of texts written on insanity, explains that they are written mainly from the standpoint of the asylum superintendent, who deals principally with the advanced cases of the disease, and so offers as an explanation for the existence of this book the need of a text dealing with the signs and symptoms of the earlier stages of the disease, when a proper diagnosis offers the most favorable prognosis. It is written in such a manner as to be of value to the medical practitioner, psychologist, sociologist and the medical student, presenting in the first part a description of the mental faculties in the normal state and then under the influence of disease. In the second part he discusses the various causes of insanity, and in the third part presents a consideration of the prevention and treatment of mental infirmity and disease. In part four there is a discussion of the signs and symptoms of the various types of insanity and weak-mindedness. A feature making the book of special interest to those not having a medical training is that the whole text has been written in the most popular manner, avoiding purely technical nomenclatures.

Diet Lists of the Presbyterian Hospital, New York City.

Compiled, with notes, by Herbert S. Carter, M.D., Assistant Visiting Physician to the Presbyterian Hospital, Associate in Medicine at Columbia University, etc. 12mo of 129 pages. W. B. Saunders Company, Philadelphia and London. 1913. Cloth. $1.00 net.

Proper diet for the sick cannot be emphasized too frequently, and one cannot follow better lists than those presented in this little book. We find, here the proper diet for various systemic and gastro-intestinal conditions, as well as suggestions for the well person. There is also included a valuable list of the chemical composition of American foods, with their respective caloric values. A useful book that should be found in the hands of every physician.

Massage—Its Principles and Technic.

By Max Bohm, M.D., of Berlin, Germany. Edited with an introduction, by Charles F. Painter, M.D., Professor of Orthopedic Surgery at Tufts Medical School, Boston. Octavo of 91 pages, with 97 illustrations. W. B. Saunders Company, Philadelphia and London. 1913. Cloth. $1.75 net.

The principles and technique of massage are presented with careful descriptions and illustrated by excellent cuts. That the work is deserving of special attention is attested by the fact that so eminent a physician as Dr. Painter has seen fit to broaden its field of usefulness by undertaking

an American edition. One early sees such a complete brief manual on massage, and one can learn the rudiments and essentials of this important phase of therapy by a careful study of the test.

A Reference Handbook of the Medical Sciences.

Embracing the entire range of scientific and practical medicine and allied science. By various writers. Third edition, completely revised and rewritten. Edited by Thomas Lathrop Stedman, A.M., M.D. Complete in eight imperial quarto volumes. Volume II. Wm. Wood & Co., New York.

The second volume of this excellent handbook of the medical sciences is a continuation of the first volume which appeared some few months ago. It begins the subject-matter with "Baden-Baden" and ends with "Chloroform." As was stated in the review of the first volume, there is perhaps no work that could be of greater usefulness to the physician of whatever branch of medicine he is following than this handbook. No one should allow himself to be without its wonderful store of information, in such an available form.

International Clinics.

Volume II. Twenty-third Series. 1913. Price $2.00. J. B. Lippincott Company, Philadelphia and London.

To those receiving these quarterly records is like attending a large clinic, for in every issue there is a mine of information of a valuable nature. In this volume, under diagnosis and treatment, are articles on the therapeutic indications of antitoxins, serums and vaccines, therapeutic exercises performed before a mirror, treatment of common animal parasitic diseases, fetal products in the treatment of carcinoma. In surgery we find a review of a year's fracture work at a university dispensary from the standpoint of the general practitioner. There is also an interesting article on the prevention of eclampsia. We find altogether twenty-three articles by eminent contributors.

Diet in Health and Disease.

By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore, and John Ruhrah, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore, Md. Fourth Edition; thoroughly revised and enlarged. 857 pages. Price, $4.00. W. B. Saunders Company, Philadelphia.

The numerous changes in the opinions of authorities as to the proper diet, and the recent facts added to our knowledge of foods and metabolisms are the reasons offered by the authors for this new edition. In fact, its size has had to be increased, and many additional tables have been presented, making the book of greater usefulness. The question of metabolism and the proper diet has been worked out so that the reader can comprehend the subject in a very easy manner. The question of infant feeding has been simplified. There is a suitable diet offered for various general and gastro-intestinal disorders.

Diseases of the Stomach, Including Dietetic and Medicinal Treatment.

By George Roe Lockwood, M.D., Professor of Clinical Medicine in the Columbia University; Attending Physician to Bellevue Hospital, New York. In one octavo volume of 624 pages, with 126 engravings and 15 plates. Cloth, $5.50, net. Lea & Febiger, Philadelphia and New York, 1913.

In this work the author has endeavored to describe the diseases of the stomach as have appeared to him, and the work is based largely upon his own experience. The subjects, as he introduces them, are: Acute gastritis, chronic gastritis, cirrhosis of the stomach, acute and chronic ulcer, erosions and rare ulcers, cancer of the stomach, sarcoma of the stomach, benign tumors and foreign bodies, tuberculosis and syphilis of the stomach, anatomy of the stomach, acute dilatation of the stomach, pyloric spasm and pyloric stenosis, congenital pyloric stenosis, hour glass stomach, diaphragmatic hernia, gastroptosis, hyperacidity, achylia, hypersecretion, neuroses, various diseases and their gastric relations. Each topic is considered in its every phase.

Therapeutics of the Gastro-Intestinal Tract.

By Dr. Carl Wegele and Drs. Maurice H. Grass and I. W. Held. 314 pages; illustrated. Cloth, price $3. Rebman Company, New York.

A very complete treatise on the examination and treatment of the various diseases and disorders of the gastro-intestinal tract, emphasizing the more modern methods of diagnosis, and the more recent principles of therapeutics.

Sterility in the Male and Female.

By Max Huhner, M.D., New York. 276 pages. Illustrated. Price, $2. Rebman Company, New York.

This work is based on the wide experience of the author, presenting in detailed form the methods employed to determine the cause and the proper treatment of sterility. A very interesting and instructive book.

Sex; Its Origin and Determination.

By Thomas E. Reed, M.D. 300 pages; illustrated. Cloth, price $3. Rebman Company, New York.

It has always been a biological problem as to the factors determining sex. The author has studied this question based upon his obstetrical experience, and has made some very interesting observations, as follows: The ovum is perfectly hermaphroditic and not destined to become male or female, but the sex is the result of certain influences perhaps not entirely comprehended. His conclusion is that the sex determination depends upon the lunar phase, the male sex developing when conception takes place in the positive phase of the moon, i.e., from the eastern horizon to its zenith, of the western horizon to

nadir; and the female resulting from conception in the negative lunar phase, or from the zenith to the western horizon, or from nadir to the eastern horizon. Whether or not this theory can be proven by other investigators remains to be seen. However, the book will prove most interesting reading, as it is written in clear style, impressing one with the earnestness of the author.

SOUTHERN MEDICAL NEWS

ALABAMA.

Dr. Frank Walton, of Birmingham, was shot and killed on the 18th of August at Mulga, in the western part of Jefferson County, by a Mr. Gid T. Weaver, a young electrician in the employ of the Woodward Iron Company. Domestic trouble is said to be the cause. It occurred at the home of Weaver, whose wife was the only witness. The deceased was a single man, thirty-eight years of age.

Forty-five applicants for license to practice medicine in Alabama were successful in their examinations by the State Board July 8-11. Also forty-five other applicants failed. Three who succeeded were negroes. The Alabama State Board of Medical Examiners is winning the reputation of being the most strict in the country.

The Madison County Medical Society met in monthly session on Monday, August 4th, in their hall, over Humphrey's drug store. Several out-of-town physicians were present.

The University Graduate School of Medicine at Birmingham is so overwhelmed with correspondence that the secretary, Dr. E. P. Hogan, has been obliged to employ an assistant. Indications are that the enrollment this fall will be very large.

The alumni of the School of Medicine of the University of Alabama at Mobile are rejoicing that out of the eleven applicants for license to practice medicine in Alabama the state board turned down only one. This is less than 10 per cent.

The Morgan County Medical Society met at Decatur August 8th at the office of Dr. J. Gunter. There was good attendance and several cases of interest were discussed.

Dr. John T. Wagnon, an old and distinguished physician at Chisholm, died at the home of his son on Friday, August 1st, aged eighty-one years. During the war between the states he organized and led a small company of volunteers who did good service to the Confederacy. After the surrender he devoted himself entirely to the practice of his profession.

At the regular meeting of the Mobile County Medical Society, August 16th, Dr. Adrian F. Taylor, recently returned from China, gave an address on the "Surgical Conditions in China."

Dr. William H. Sanders, state health officer, says pellagra is spreading in Alabama. He believes that there were five hundred deaths from that cause in this state in 1912. He is making a state-wide tour, visiting several places in each county, in the interest of public health and sanitation.

Dr. W. H. Oates, state prison inspector for Alabama, has ordered the city jail at Anniston closed and the prisoners transferred at once to Calhoun County jail. Conditions in the Anniston jail were entirely too insanitary.

SOUTH CAROLINA.

Dr. Ernest Cooper, of Columbia, is assisting in the preparation of typhoid bacterin at the board of health laboratory. The demand for the bacterin this year is twice as great as it was last summer and additional apparatus had to be purchased.

At Greenville the so-called electro-medic doctors have taken French leave, leaving behind them quite a number of worthless checks. According to the Greenville News, they were enabled to swindle the citizens by presenting letters of introduction from respectable people in Chattanooga.

The Greenville County Medical Society is a live institution. The meetings are large and enthusiastic, and they are planning to establish in the town of Greenville a medical library for the use of the society.

The Abbeville Medical Society held its regular monthly meeting for August at Calhoun Mills. For their pleasure the river had been seined and the result was a fine fish dinner. The next meeting is expected to be at McCormick.

The Southeastern Sanitary Association, having about 1,000 members, will hold its annual meeting in Columbia on February 12-13, 1914. The General Assembly will be in session at that time and the society hopes to enlist the interest of representative men from all parts of the state.

NORTH CAROLINA.

In August, at Hickory, Dr. W. L. Abernathy, a prominent physician, returned to his home Sunday night from visiting a patient, retiring about twelve o'clock without complaining. At an early hour Monday morning he was found dead in his bed.

At Charlotte, the physicians of the city are considering the purchase of the Piedmont Building, one of the largest in the city, for a physicians' office building.

At Raleigh, the State Board of Health has established a new department, known as the bureau of county health. Dr. P. W. Covington, of Wadesboro, is in charge. A new state law provides for this important officer in each county.

Dr. J. Vance McGoughan, of Fayetteville, entertained one hundred members of the Cumberland-Hoke Medical Society early in August at his country place, which is called "Skibo." A barbecue and a fruit feast were served.

The New Bern Sun says that Dr. Joseph S. Patterson, port physician, declares that there is less sickness of all kinds in the community than has been the case for several years. There is only one case of typhoid reported within the city limits.

The Wilmington Star of August 10th says: "The success of vaccine for tuberculosis at an Ashe-

ville hospital has drawn people there from all over the country, and the government has two experts at work proving the value of the discovery.'

At Durham, George W. Watts, builder of the Watts' Hospital, has approved the government's proposition to locate the southern pellagra station at Durham, and has agreed to erect another building if necessary.

FLORIDA.

Dr. M. B. Herlong, city physician for Jacksonville, is meeting with great success in treating prisoners who are victims of the drug habit. In view of this fact Judge Anderson will send all convicted persons who suffer with drug addictions to the city prison farm, where they will be under the care of Dr. Herlong.

Dr. L. Menedez, of Tampa, has been seriously ill at Havana. He went to the Cuban capital to wait upon his daughter who was taken ill while visiting. She became much better, but the doctor had to go to a hospital and submit to an operation. He is now entirely recovered.

Dr. Hiram Bird, who has been on the state board of health for the past eleven years, has resigned and will be associated with Dr. J. M. Masters, who has a private sanitarium at Newport, Tenn. They will also have a sanitarium at Port Orange in this state. They will make a specialty of tuberculosis.

Governor Park Trammell has appointed the following physicians to constitute the regular State Board of Medical Examiners for the next four years: Dr. T. H. Stokes, Pensacola; Dr. Geo. B. Glover, Monticello; Dr. J. D. Fernandez, Jacksonville; Dr. E. W. Warren, Palatka; Dr. W. S. Gramling, Miami; Dr. A. R. Bond, Tampa; Dr. T. A. Neal, Sanford.

At Jacksonville, a Dr. Chapman, of the so-called physio-medical school, was arrested and fined for practicing medicine without a license. He refused to pay the fine and was incarcerated in the county jail. Friends signed his bond and he was released. Further proceedings are threatened.

GEORGIA.

At Covington, August 20th, Dr. W. J. Higgins died at his home at 5:30 a. m., after a lingering illness. He had retired from active practice about a year ago on account of ill health.

At Lithia Springs, on August 5th, Dr. C. C. Garrett, aged 63, a very prominent physician, died at his home. He served twenty-four years on the Douglass County Board of Education. He leaves a large family.

Dr. John Powell, of Atlanta, recently returned from traveling through Europe and the British Isles, declares that the recently enacted medical practice bill of Georgia is vastly superior to any laws on the subject he found while traveling abroad.

On August 16th at a meeting of Atlanta physicians in the Hotel Ansley it was decided to open a new medical college in the city, with a hope of making it a branch of the southeastern university system. They expect to begin operations on September 25th. The full faculty and board of trustees had not been completed at the time of this writing.

Dr. W. H. Born, of McRae, was operated on successfully for appendicitis at the Grady Hospital Saturday, August 16th.

Quite a number of cases of tetanus were reported in Atlanta in August. Several were treated with antitoxin, both in hospital and in private practice. The doctors warn all mothers to keep their children well shod and examine their feet every night. Every puncture or cut should be treated by a physician.

At Barnesville August 21st, Dr. Smith Rumble, one of the leading physicians of that section, died after a lingering illness. He was about fifty years of age.

While Miss Mary Horsey, daughter of Dr. Horsey of Brunswick, was at Fernandina enjoying a dip in the surf, she got beyond her depth and was about to drown. Mr. Sherman Hillard, of Washington, D. C., went to her rescue and after a hard struggle managed to get her ashore. As he reached the water's edge he dropped dead.

The Georgia Medical College at Augusta is urged by Dr. E. A. Stigner, president of the State Dental Society, to add a department of dentistry. He claims there are hundreds of prospective students of dentistry available for such a department.

Dr. George Y. Pierce, a prominent physician of Atlanta and a leader in local politics, died August 25 at his home, 39 Ponders Avenue, aged 49 years. He had been confined to his bed for a month. His wife and two sons survive.

Dr. Albert B. Mason, formerly associated with Dr. Lokey, announces his removal from Atlanta to Waycross.

KENTUCKY.

At Louisville, the city health department has reported to the Board of Public Works that seven of the city pumps are insanitary. These pumps will be closed to the public and the water company is asked to install hydrants. There have been nine deaths from typhoid in the city in August.

The health department warns the public against patronizing moving picture shows where the air is bad.

At Whitesburg two or three cases of pellagra have developed and the board of health has been notified.

At Hopkinsville, Dr. W. A. Lacy, county health officer, has notified the people to drink only boiled water.

Dr. Clarence P. Burnett, of Paducah, has returned to his home from Shelbyville where he has been recuperating his health.

At Paducah, four dairymen have been arrested charged with allowing milk that was offered for sale to become warmer than the city ordinances allow.

MARYLAND.

On August 20th the Baltimore County Medical Association met at the Maryland Hospital for the Insane, at Catosville, on the invitation of Dr. J. Percy Wade, Supterintendent.

At Baltimore, Dr. George C. Wegefarth, Dr. J. Wesley Stewart and an employe were prosecuted for "working on Sunday" because they operated on a colt. They were discharged without fines, having proved that the operation was done by another employe, later discharged, who had not been told to work on Sunday.

Dr. Hugh H. Young, of Johns Hopkins University, went to London, read a paper before the Medical Congress, saw the sights and reached home all in seventeen days.

On August 16th, at Baltimore, Health Commissioner Gorter reported seventy new cases of typhoid for the week. The disease is increasing.

At Frederick, Dr. Ira J. McCurdy, health officer, declares that if the present dewooding continues both Tuscarora Creek and Fishing Creek will be dry within twenty years. They are the sources of the city's supply.

WASHINGTON, D. C.

Major Frederick F. Russell, on duty at the school and also curator of the Army Medical Museum, has been ordered to New York City for duty as attending surgeon. He will relieve Maj. Eugene R. Whitmore, who is ordered to Wasington for duty as Professor of Military and Tropical Medicine at the Army Medical School.

While on the porch of his residence at 1759 Columbia Road, at 7:45 o'clock on the evening of August 16th, Dr. David F. Pennington, 65 years of age, was stricken suddenly with acute indigestion and died half an hour later. He came to Washington from Baltimore about eleven years ago.

MISSISSIPPI.

At Hattiesburg, the Forrest County Medical Society at a recent meeting passed resolutions urging their senators and representatives in the legislature to establish a home for feeble-minded children of the state in connection with the blind institute at Jackson.

Dr. E. H. Galloway, secretary of the State Board of Health, states that incomplete statistics show 1,253 cases of pellagra reported in Mississippi for a period of six months ending June 30th, resulting in 267 deaths. He says the spread of pellagra is appalling. There were 588 whites thus affected and 665 colored. The mortality is greater among the blacks than among the whites. He urges the senators and representatives in Congress to protect the people against the importation and sale of spoiled corn and its products, as many investigators consider that the cause of pellagra.

Dr. J. P. Wall, city physician and health officer of Jackson, reports that for the six months previous 363 deaths occurred exclusive of contagious diseases, of whom only 199 were bona fide residents of Jackson. The others were transients in hospitals and other places. Thirty of the deaths were from pellagra.

At Meridian, Dr. S. P. Flynt has entered suit against Dr. T. E. Royals for $10,000 alleged damages. The plaintiff alleges that in a personal difficulty between two physicians on the streets on June 23d the defendant struck him in the right eye, destroying the sight.

Dr. C. G. McEachern, formerly of Moss Point, has removed to Denver, Colo., where he is doing only orthopedic surgery.

OKLAHOMA.

At Oklahoma City on August 24th Dr. E. L. Dagley, aged 69 years, was found dead in his room at 230 West Washington Avenue. His death was due to heart failure. He had resided in that city for over eighteen years.

Dr. J. C. Mahr, State Commissioner of Health, is conducting an energetic campaign to induce local health officers to make the reports their duties require. He advocates what he calls a "Baby Saving Show" in every town and village, as he estimates that 50 per cent of infantile deaths are due to conditions within human control.

TENNESSEE.

At Chattanooga, Commissioner Evans reports that there are a large number of cases of typhoid fever in the city. He warns the public against drinking cistern, well or spring water that has not been boiled.

At Nashville there is a considerable increase in the number of cases of typhoid and in the county also. Dr. B. G. Tucker, County Health Officer, says that most of the cases are what is known as paratyphoid, and are not generally serious. There have been only two deaths from typhoid since the 1st of January.

At Bristol, Tenn., Dr. M. M. Pearson, of that city, has been appointed City Health Officer by the Mayor under authority given him by the Board of Commissioners.

At Knoxville, the colored medical and surgical societies of that town have requested permission to visit and treat their negro patients in the Knoxville General Hospital, the property of the city. They declare if they are not allowed to do so they will build another hospital for negroes exclusively.

At Bristol, Tenn., on August 12th, Dr. Matthew M. Butler, an aged physician of Bristol, died at his home in the city. He was a noted physician and an honored Confederate veteran.

The McMinn County Medical Association met at Athens in the office of Dr. J. R. Nankivell on August 4th. Doctors from Calhoun, Niota and Athens were present.

On August 21st Dr. Oscar E. Harris, of Wynne, Ark., died at the Memorial Hospital. In an adjoining room lay his wife recovering from a serious operation. For over twenty years Dr. Harris had been an honored resident of Wynne.

TEXAS.

Dr. Charles B. McGlumphy, of Moundsville, W. Va., has been appointed professor of bacteriology in the University of Texas. He has for some time been in Germany doing post-graduate medical work.

On Monday, August 11th, the Galveston County Medical Association was entertained by a man named Whitman. He was able automatically to dislocate every joint in his body capable of dislocation and then replace them without pain. He

also caused his liver, intestines and heart to move several inches out of their proper places and return. There was no chance for deception.

Mr. Frank Reedy, bursar of the Southern Methodist University, announces that the board of trustees have appropriated $25,000 for improvements in their schools of medicine and pharmacy.

At Ft. Worth on August 16th Dr. Holman Taylor lectured before the Tarrant County Medical Society on the subject of "Army Sanitation."

The Navarro County Medical Society held their weekly meeting at Richland on the night of August 15th. The meeting was well attended.

At Hico, Dr. C. H. McCollum left August 14th for Galveston to take passage for Bremen, Germany, thence to Vienna. He and his family expect to remain in Europe a year.

On August 22d the Navarro County Medical Society met at Powell, the guests of Dr. Carter. Rev. Neal W. Turner, representing the church and Hon. Luther A. Johnson, for the legal fraternity, participated in the exercises.

On August 18th Dr. T. E. Stone, a prominent physician of Jasper, died from cancer of the throat.

Dr. Charles C. Gree.., City Health Officer of Houston, has revoked the license of a dairyman on the Westheimer Road on account of the insanitary condition of the dairy. All the dairies supplying Houston are carefully investigated at frequent intervals.

VIRGINIA.

The Danville Register announces that Dr. H. Taylor Hawkins, formerly of Richmond, has moved to Danville.

Dr. Allen W. Freeman, of the State Board of Health, has been investigating the progress of the hookworm campaign. He considers Lee County the most intensely interested in the hookworm fight of any in the state, though less infected than many others.

At Charlottsville, on the 31st of July, Dr. B. W. Green died at the university hospital. He was a native of Warwick County, to which place his body was forwarded for interment.

At Bristol, Va., an inspector employed by the State Board of Health announces that so far as he can learn only five cases of typhoid fever are in the city, though across the line in Bristol, Tenn., there are sixty cases.

Dr. Bertha Berger has resumed her position on the medical staff at the Western State Hospital.

Dr. R. L. McMurran and Dr. Burnley Lankford have been appointed examining surgeons for the United States Pension Board for the Second District of Virginia.

The Staunton Leader announces that Miss Jeanette Thorpe Alexander, of Charleston, W. Va., and Dr. Raymond H. Dunn, of Kentucky, will be married this fall. Dr. Dunn is now surgeon and physician for the Pence Coal Company, in Stone, Ky.

At Williamsburg Dr. Roy Flanagan, of the State Board of Health, reports that he has located the source of the typhoid fever that has prevailed among the attendants of the Eastern State Hospital in the persons of two young women attendants who frequently visited in town.

On August 20th Dr. Edmonds S. Boice, of 400 East Franklin St., Richmond, married in Baltimore Miss Lyall E. Caughy. Miss Caughy was beginning her career as a trained nurse at the Union Protestant Infirmary in Baltimore when she first met Dr. Boice, then resident physician.

WEST VIRGINIA.

At Charleston, W. Va., the State Board of Health in its August session examined forty-six applicants for license to practice medicine, rejecting ten. It debarred from practice in this state an organization calling itself "The United Doctors Company of Wheeling." Testimony showed most fraudulent methods of imposing upon patients and securing exhorbitant fees.

Dr. Charles B. McGlumphy, son of Dr. W. G. McGlumphy of Wheeling, has been appointed professor of bacteriology at the University of Texas.

Dr. J. C. Peck, of Logan County, for three years prison physician at Moundsville, was summarily dismissed by Warden M. L. Brown, no reason being given.

Dr. Claud A. Thomas having been refused a license to practice medicine by the West Virginia State Board of Health, has appealed to the Supreme Court of Appeals and secured a writ directing the members of the board to appear at Charleston at the September term of court to show cause why the license was refused.

The "United Doctors" at Wheeling appealed to Judge H. C. Hervey for an injunction restraining the State Board of Health from revoking the licenses of Doctors A. L. McClelland and Thomas F. Roberts. After a full hearing the plea was refused.

At Alexander, at about four o'clock p. m., on August 11th, Dr. W. J. Clontz, a leading physician and prominent citizen, while standing in front of the postoffice was shot and instantly killed by A. M. West, a rural mail carrier. Five shots were fired, three of which took effect. West is now in jail at Asheville.

At Wheeling Dr. E. W. Crooks has been appointed County Health Officer for a term of four years.

The epidemic of smallpox which has been prevailing at Hundred has been stamped out. According to Dr. M. F. Kearns, of that city, only one or two cases remain and they are convalescent.

Dr. W. C. Etzler, head of the city health department of Wheeling, had his arm broken August 22d while cranking his automobile. The injury is severe.

NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS.

The twenty-third annual session of the New York and New England Association of Railway surgeons will be held at the Hotel Astor, New York City, on Wednesday, October 22, 1913. A very interesting and attractive program has been arranged. Dr. Hugh H. Young, of Baltimore, will deliver the "Address in Surgery." Railway surgeons, attorneys and officials and all members of the medical profession are cordially invited to attend.

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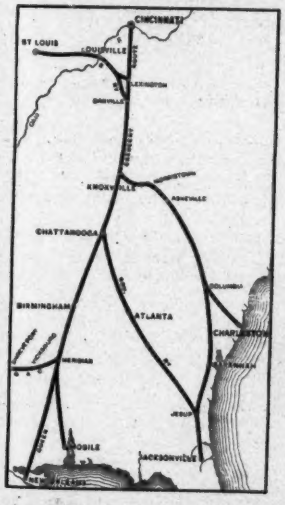

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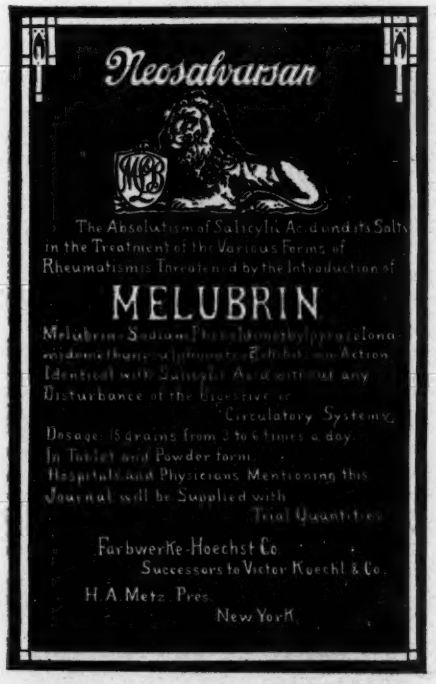
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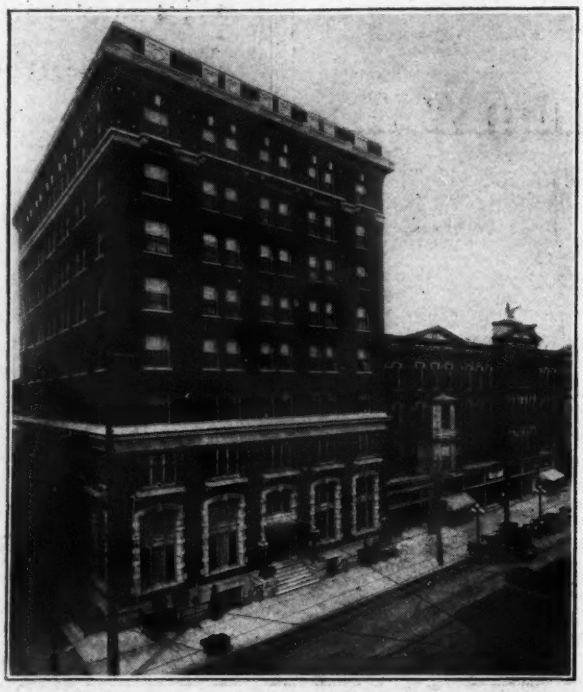

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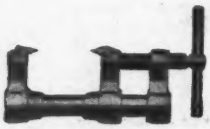

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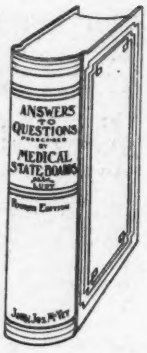

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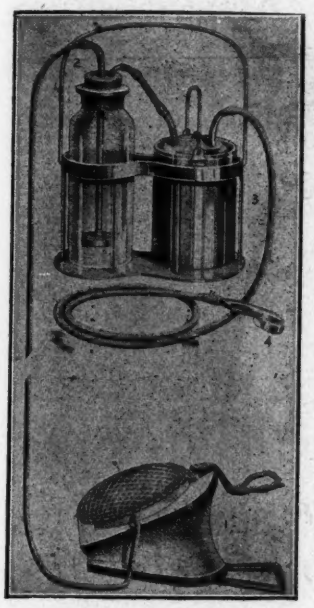

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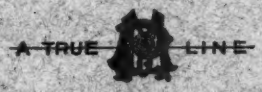

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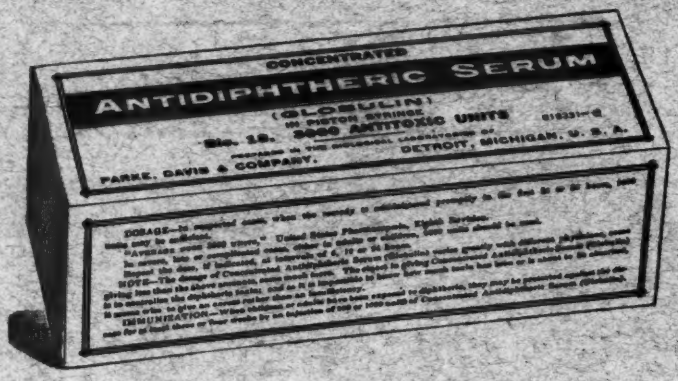

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